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Characterising the outcomes, impacts and implementation challenges of advanced clinical practice roles in the UK: a scoping review

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ABSTRACT

Objectives In response to demographic and health system pressures, the development of non-medical advanced clinical practice (ACP) roles is a key component of National Health Service workforce transformation policy in the UK. This review was undertaken to establish a baseline of evidence on ACP roles and their outcomes, impacts and implementation challenges across the UK.

Design A scoping review was undertaken following JBI methodological guidance.

Methods 13 online databases (Medline, CINAHL, ASSIA, Embase, HMIC, AMED, Amber, OT seeker, PsycINFO, PEDro, SportDiscus, Osteopathic Research and PenNutrition) and grey literature sources were searched from 2005 to 2020. Data extraction, charting and summary was guided by the PEPPA-Plus framework. The review was undertaken by a multi-professional team that included an expert lay representative.

Results 191 papers met the inclusion criteria (any type of UK evidence, any sector/setting and any profession meeting the Health Education England definition of ACP). Most papers were small-scale descriptive studies, service evaluations or audits. The papers reported mainly on clinical aspects of the ACP role. Most papers related to nursing, pharmacy, physiotherapy and radiography roles and these were referred to by a plethora of different titles. ACP roles were reported to be achieving beneficial impacts across a range of clinical and health system outcomes. They were highly acceptable to patients and staff. No significant adverse events were reported. There was a lack of cost-effectiveness evidence. Implementation challenges included a lack of role clarity and an ambivalent role identity, lack of mentorship, lack of continuing professional development and an unclear career pathway.

Conclusion This review suggests a need for educational and role standardisation and a supported career pathway for advanced clinical practitioners (ACPs) in the UK. Future research should: (i) adopt more robust study designs, (ii) investigate the full scope of the ACP role and (iii) include a wider range of professions and sectors.

Strengths and limitations of this study

- This is the first attempt to comprehensively map the evidence on advanced clinical practice roles across all sectors, professions and settings in the UK, highlighting clear implications for national health workforce policy development. The review covers ACP roles in all health professions, hence, has a broad relevance and applicability.
- The use of an internationally recognised framework (PEPPA-Plus) to map the outcomes, impacts and implementation challenges of advanced practice roles boosts the international relevance of the findings.
- This was an extremely wide ranging and comprehensive review that was underpinned by a careful, comprehensive and systematic search strategy.
- Ongoing ambiguity and variability of advanced clinical practice roles and titles within the UK means that some relevant studies may nonetheless have been missed or misclassified.

BACKGROUND

Like countries all over the world, the National Health Service (NHS) in England and across the UK is facing unprecedented pressures associated with ageing populations, rising demand, rising costs, increasing health inequalities, workforce shortages and, more recently, the coronavirus pandemic.[1–3] NHS policies such as the NHS Long Term Plan (2019),[4 5] the NHS People Plan (2020)[6 7] and the General Practice Forward View (2016)[8] set out a vision for significant change in future service delivery with a concomitant need to develop models of care that cross traditional sectors and professional boundaries.[4 8–13] In order to support service development, there is considerable attention being given to the potential for non-medical advanced clinical practice (ACP) roles to contribute to the transformation agenda.[5–7 14–19]

These developments mirror policy initiatives and debates on 'task shifting' and optimal workforce skill mix in many other countries,[20–26] and are supported by international systematic review evidence that

advanced practice roles are safe, effective, have high levels of patient satisfaction and produce a range of benefits for service accessibility and efficiency.[27–55] In many countries, ACP roles are separately regulated and are underpinned by standardised training programmes.[20 56–58] In contrast, in the UK, advanced roles have evolved more organically in response to local need, local health service commissioning decisions and profession-specific imperatives rather than as part of an overarching national health workforce plan.[58 59] As a result, there has been a proliferation of roles with different titles, different job descriptions, different scope of practice and different educational requirements (particular confusion relates to roles with titles such as 'extended' or 'specialist' practitioner vis a vis 'advanced' practice roles).[58–60] Moreover, the definition and understanding of advanced roles have differed both within as well as between professions.[61] This variability and lack of consistency gives rise to concerns for patient safety and impedes workforce planning at scale.[62–64]

In England, the NHS workforce transformation agenda is being supported by a national non-departmental public body, 'Health Education England' (HEE). HEE is spearheading a range of developments to bring greater national consistency around ACP, and, in 2017, it published a 'Multiprofessional Framework for Advanced Clinical Practice' for England that sought to provide a clear definition of ACP.[65] The HEE framework states that:

> Advanced clinical practice is delivered by experienced, registered health and care practitioners. It is a level of practice characterised by a high degree of autonomy and complex decision-making. This is underpinned by a master's level award or equivalent that encompasses the four pillars of clinical practice, leadership and management, education and research, with demonstration of core capabilities and area specific clinical competence. Advanced clinical practice embodies the ability to manage clinical care in partnership with individuals, families and carers. It includes the analysis and synthesis of complex problems across a range of settings, enabling innovative solutions to enhance people's experience and improve outcomes.

In this definition, ACP is established as a level of practice applicable across professions, rather than a specific role. A key distinguishing feature of ACP is the level of autonomy exercised by a practitioner as well as an ability to operate at an autonomous advanced level across four domains, including, but not limited to, clinical practice. These are referred to as the four 'pillars' of ACP (education, leadership, research and clinical practice), and the framework describes a set of generic core capabilities that should be achieved within each pillar.[65]

The HEE ACP framework applies specifically to England but has been developed in collaboration with relevant stakeholders across the UK and has been informed by existing advanced practice frameworks from the other three countries.[15 17 18] The framework aims to support NHS providers to enable delivery of sustainable health and care services. It also recognises that introducing, developing and supporting ACP within an organisation requires good governance in order to embed ACP in the workplace.[65 66] The urgency of this agenda has been thrown into sharp relief during the coronavirus pandemic where advanced clinical practitioners (ACPs) have been required to work in new ways and with even greater autonomy.[3]

In a related development, HEE is leading the establishment of a 'Centre for Advancing Practice'. The Centre's role is to strengthen governance arrangements for advanced level practice by recognising practitioners working at an advanced level through two routes: (i) accreditation of university education programmes and (ii) an HEE recognition route that an individual can follow.

In order to inform this ambitious programme of work, HEE commissioned a team at the University of Nottingham to undertake a review that would identify and summarise the existing available evidence on ACP across the four countries of the UK. This recognises that while advanced roles in certain professions have a strong evidence base internationally, there is a need to establish a baseline of evidence for ACP roles specifically within the UK context. Nonetheless, given the international imperative around advanced practice role development, the review outcomes will be of interest to other countries currently considering the development of similar roles.

The review aim was to characterise the current evidence base underpinning multi-professional advanced level practice from a workforce, clinical, patient and service perspective in the UK. Specific objectives were:

- To identify what evidence exists about implementation, impacts and outcomes of advanced clinical practice in the UK across (i) different professions, (ii) different sectors and (iii) different specialities.
- To identify the challenges reported to affect advanced level practice implementation by sector, specialty and profession in the UK.
- To identify and describe the different types of outcomes and impacts of advanced level practice roles that have been reported, and to summarise existing knowledge on these, by sector, specialty and profession in the UK.
- To identify key gaps in the existing evidence base and the most urgent questions for future research.
- To consider how advanced level practice is being defined, conceptualised and applied across professions and the public, private and voluntary sectors of service provision.

METHODS AND METHODOLOGY

The aim of this review was to identify and map the existing evidence (rather than to synthesise it in relation to a specific question), hence, it adopted a scoping review methodology, following JBI guidance.[67–69] The review

was registered with Open Science Framework.[70] A highly detailed protocol was published in 2020[71] (see online supplemental file 1). For this reason, the description of methods below is relatively brief—the protocol provides a full justification and explanation of all methodological steps and decisions. The review is reported in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting guidance (extension for scoping reviews).[72]

Searching

A highly comprehensive and complex search strategy was implemented between November 2019 and February 2020 across 13 online databases and grey literature sources (see online supplemental file 2 for a list of all information sources and online supplemental file 3 for a full search strategy as applied within Medline). Reference lists of included studies and systematic reviews were also scrutinised (but systematic reviews were not included as papers in the review). The review included evidence that met the following criteria: (i) primary research, service evaluations or audits of any study design, including grey literature; (ii) reported on ACP roles or services fulfilling the HEE definition of ACP; (iii) reported on an established role or service (ie, did not include trainees); (iv) any profession; (v) any sector and any setting and (vi) must be in the UK (England, Scotland, Northern Ireland, Wales). A UK-focused search filter (based on previously published search filters[73 74] was incorporated into the overall search strategy to limit the search results to UK-focused studies, including relevant international studies that involved the UK. The latter were considered for inclusion, provided UK data were reported separately. The date range of the search was 2005–onwards. The rationale for the date limit of 2005 is due to the timing of key policy developments around advanced clinical practice in the UK. Prior to this date, most advanced clinical practice roles and research were limited to nursing and referred to a wide range of highly inconsistent titles, educational preparation, role definitions and scope of practice.[60]

Screening and study selection

Study screening and selection was undertaken by two reviewers (CE, BP) working independently. The greatest challenge in the search and study selection related to the highly varied terminology used to describe ACP roles. This resulted in a preanticipated large number of records being retrieved, both for the initial screening process as well as for review of the full text. Each record was scrutinised for descriptions and evidence that the role met the HEE criteria. In cases where the role title included the term 'advanced' but details within the paper showed that it did not meet the HEE definition, it was excluded. Likewise, in cases where the role title did not include the word advanced but described a role that met the HEE criteria, it was included. Where the two independent reviewers were unsure or could not agree, the paper was discussed with another team member (sometimes with several team members) and advice was sought from experts representing different professions. Excluded papers were listed in a table with reasons for exclusion noted (see online supplemental file 4).

Data extraction, charting and summary

Data charting and summary was undertaken using a framework approach,[75] guided by the PEPPA-Plus framework—an internationally recognised and widely used framework for evaluating the structure, outcomes and implementation of ACP roles.[76–78] Data extraction and charting was undertaken by three team members (CE, BP, GY). Following piloting of the framework template, GY undertook extraction and charting for the secondary care sector papers and BP did this for the papers in all the other sectors. CE independently extracted data from 20% of all papers as a measure to ensure quality control and consistency. The three team members met regularly together to discuss any queries and challenges and resolved these through consensus or by discussion with members of the wider team.

Data extraction/summary involved three steps (see online supplemental file 5 for the study characteristics and structure data extraction template and online supplemental file 6 for the outcomes and implementation data extraction template):

1. Charting key study characteristics relating to methodology, study aims and 'structural' features of ACP roles (eg, title, profession, sector, setting, stage of role implementation). As per scoping review guidance, formal quality appraisal was not undertaken.
2. Extracting and summarising data related to ACP outcomes according to five key outcome domains, each with predefined subdomains: (i) patient and family (eg, clinical/functional health status, health-related behaviours, healthcare experiences, perceptions/satisfaction with care); (ii) quality of care (eg, patient safety, processes of care and access to care); (iii) healthcare provider, team and stakeholder (eg, healthcare team performance, knowledge/skills, acceptance and satisfaction with the ACP role, ACP role support); (iv) organisation (eg, recruitment and retention) and (v) healthcare use and costs (eg, length of stay, readmission rates, waiting times, cost avoidance, cost savings).
3. Using thematic analysis[79] to code study findings and identify key themes affecting ACP implementation (using NVIVO V.12 Pro software[80]).

Data from steps 1 and 2 were analysed using descriptive summaries presented numerically (eg, percentages in tables or figures) or narratively. Data from step 3 were analysed thematically.[79] As per the review objectives, the narrative summaries sought to characterise the evidence base as a whole while drawing attention to any sector, specialty and professional-specific commonalities and differences.

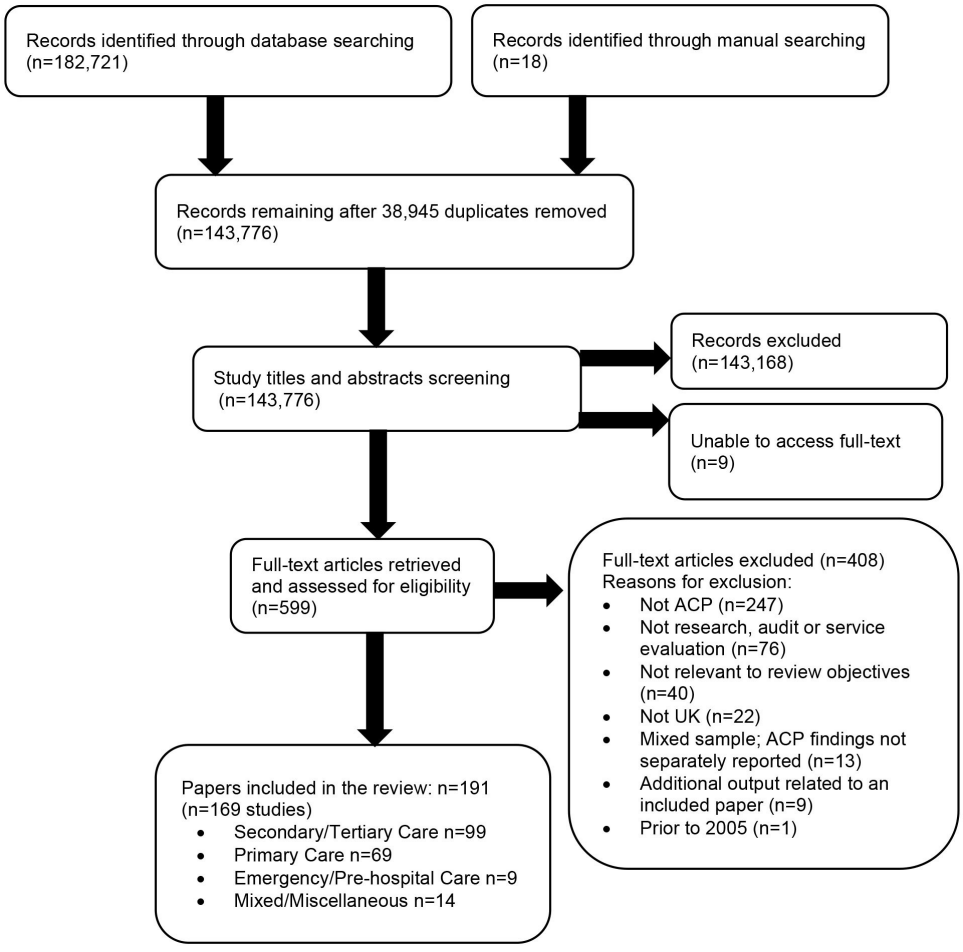

Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram.

Patient and public involvement

The review was conducted by a multi-professional, multidisciplinary team including an experienced librarian. A lay representative within HEE (PH) was a key part of the team and was involved at every stage. He was particularly instrumental in ensuring that patient and family perspectives were reflected in the review objectives and highlighted in the discussion points and recommendations.

RESULTS

This review had a wide and highly comprehensive scope and included a large number of papers (see later). Hence, in order to maintain readability, the results are necessarily presented in a highly summarised form. Online supplemental files have been extensively used to provide the reader with more detail, and to maintain the rigour and transparency required to meet robust scientific standards.[69 72]

Literature search

Records were imported into EndNote, a reference management programme. After deduplication of records, 143 776 were screened; 599 records were reviewed as full-text papers and 191 papers (representing 169 distinct studies) were included in the final review.

See the PRISMA[81] flow diagram in figure 1 for a summary of the search process.

Study characteristics and structural features of the ACP role

The 191 papers were categorised into four sectors: (i) primary care, (ii) secondary/tertiary care, (iii) emergency/prehospital care and (iv) a mixed/miscellaneous group. The latter relates to papers reporting evidence across multiple sectors or from a small number of other settings (see online supplemental file 7 for full tabular summaries of key study characteristics organised per sector).

Study design

In terms of study design, overall there was a preponderance of relatively small-scale (eg, single-site, single-Trust, single-service, single-practitioner) studies, reflected by the fact that 61% of the papers (n=116) were reporting service evaluations or audits. The majority of papers used quantitative designs (n=112), 27% (n=52) used a qualitative approach and 14% (n=27) were mixed-method. Most quantitative papers used descriptive or observational designs. Only three papers reported Randomised Control Trials (RCTs).[82–84] Two additional papers reported on a pilot study[85] linked with one of these RCTs and an associated economic evaluation.[86] Three papers used

Table 1 Included papers per sector

Sector	Papers (n)	Studies (n)	References
Secondary/tertiary care	99	92	82 89–108 127 128 130–133 135–139 147–157 202–257
Primary care	69	55	84–88 109–119 129 140–146 158–175 258–284
Emergency and prehospital care	9	9	83 134 285–291
'Other' sectors/settings, including: ► Multiple/mixed sectors ► Mental health trusts ► Community learning disability team ► Alcohol and drug services ► ADHD clinic	14	13	120–126 176 177 292–296

ADHD, Attention Deficit Hyperactivity Disorder.

quasi-experimental designs.[87–89] See online supplemental file 8 for more details on study design and scope.

Sector, profession, setting and date

The majority of papers related to primary and secondary/tertiary care sectors (n=69 and n=99, respectively). A small number focused on emergency/prehospital care (n=9) and a small number were categorised as 'miscellaneous', representing mixed sectors (n=14). Table 1 includes the paper references per sector.

Half the papers (n=95) were published within the last 5 years indicating that most evidence around ACP is relatively recent. The majority of papers (n=148) were from settings in England.

The papers mainly represented four professions: nursing (n=77), pharmacy (n=34), radiography (n=34) and physiotherapy (n=32). A minority of papers related to other professions or had mixed samples (midwifery, audiology, healthcare scientist, paramedic, occupational therapy, perioperative specialist practitioner). There were no papers related to social care. Table 2 gives the references of the papers categorised per profession.

Terminology

A key finding was that across the papers and professions, ACP was referred to by a multitude of different titles, some of which denoted the profession but not the advanced level (eg, nurse practitioner), some of which denoted the

Table 2 Papers according to professions

Professions	Papers (n)	References
Nursing	77	82 91 96–100 102 106–112 115 116 119 120 124–126 129 131 132 134–137 148 149 153 154 157–161 163 164 170–176 204 208 212 213 217 218 220 223–226 230 231 234 237 242 244 248 253 259 268–270 273 276 278 280 281 284 287
Pharmacy	34	84–89 105 138 140 156 162 165 167 168 205 214 227 228 233 251 252 261–265 271 274 283 285 288 294–296
Radiography	34	92–94 101 103 130 141 147 150–152 155 202 206 207 209 210 216 219 229 236 238 239 245–247 249 250 254–257 286 292
Physiotherapy	32	83 95 113 114 117 127 128 139 142–146 166 203 211 215 221 235 240 243 258 260 266 267 272 275 277 279 282 289 290
Occupational therapy	2	232 241
Midwifery	1	133
Healthcare scientist	1	222
Paramedic	1	291
Perioperative specialist practitioner	1	104
Audiology	1	90
Multi-professional (papers including a varied mix of professions, including health visiting, midwifery, nursing, physiotherapy, pharmacy, paramedics, dietician, speech and language therapy, unspecified allied health professionals)	7	118 121–123 169 177 293

Table 3 Reporting of four pillars

ACP pillar	Papers (n)	References
Clinical	150	82–107 110–114 116 117 119 127–131 135–147 153 157 159–168 170–172 174 175 202 203 205–215 217–219 221–224 226–233 235–237 240 243–245 247–263 266–291 294–296
Clinical, education, research and leadership	15	121 124–126 132–134 156 204 216 225 238 246 292 293
Clinical and leadership	8	96 120 122 123 151 152 158 234
Clinical, education and leadership	7	108 115 155 169 239 241 242
Clinical and education	2	173 265
Clinical and research	2	149 154
Education and research	1	150
Clinical, education and research	1	148
Clinical, leadership and research	1	220
Unreported	4	118 158 176 177

ACP, Advanced Clinical Practice; ACPs, Advanced Clinical Practioners.

level but not the profession (eg, advanced practitioner), and some of which denoted neither the level nor the profession (eg, extended scope practitioner). For the four major professions represented (nursing, pharmacy, radiography, physiotherapy), the number of different role titles reported in the papers was, respectively: 15, 13, 13 and 17 (see online supplemental file 9 for a table listing all the ACP role titles found in the papers per profession).

Reporting of ACP 'pillars'

The majority of the papers (n=150) reported exclusively on the clinical pillar of the ACP role; 16% of papers included some element of advanced clinical practitioners' (ACPs) leadership role, 13% included education and only 10% included research. More detail is provided in table 3.

ACP role implementation stage

One hundred and fifty papers provided details on the stage of ACP role implementation. Of these, only 39 papers reported on roles that had been implemented for over 2 years.[90–126] This suggests that many studies and evaluations of the ACP role are taking place when the role is still in the relatively early stages or are not explicitly including role maturity within their analytical framework.

Evidence related to ACP outcomes

The evidence related to ACP outcomes was organised into five overarching domains, each with a number of subdomains. These correspond to the domains of the PEPPA-Plus Framework.[78] See figure 2 for the number of papers per outcome domain, and see online supplemental file 10 for a detailed table of outcome domains and subdomains linked to the papers reporting on these according to sector. In terms of over-arching outcome domains, a large number of papers reported on 'healthcare provider and stakeholder' outcomes (n=104 papers) and 'healthcare use and cost' outcomes (n=104 papers). Less than half the papers (n=73) reported on 'patient and family-related' clinical outcomes, just over a quarter of the papers reported on 'quality of care' related outcomes (n=51) and only five papers reported on outcomes related to 'organisation, professional and workforce' issues.

The most commonly reported outcome subdomains were 'appropriateness of care' (n=91) and 'patient perceptions/experiences of ACP roles' (n=66). The

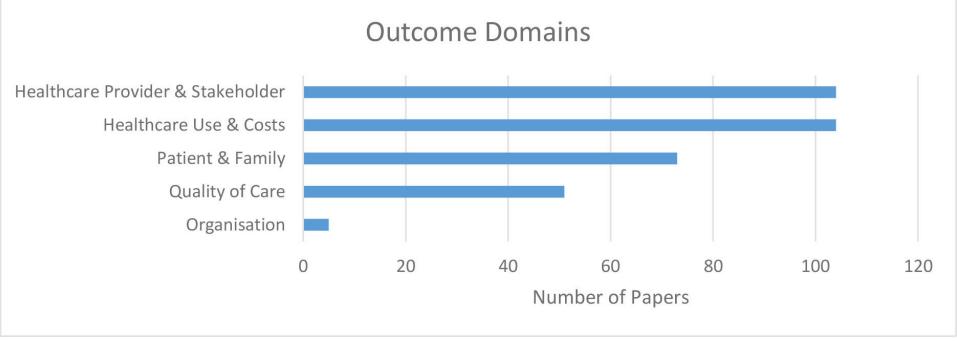

Figure 2 Number of papers per outcome domain.

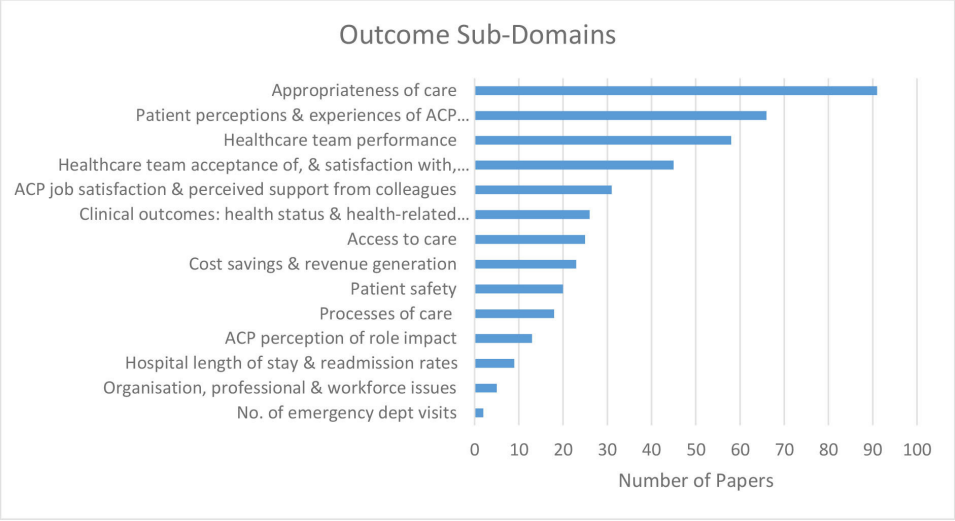

Figure 3 Number of papers per outcome subdomain.

number of papers reporting other subdomains ranged from 58 (healthcare team performance) to 2 (number of emergency department visits). Of note is that only 14% of papers (n=26) reported on clinical outcomes relating to health status and behaviour and only 10% of studies (n=20) reported on patient safety-related outcomes. See figure 3 for the number of papers per outcome subdomain.

Outcome domain 1: patient and family outcomes

ACP-led care was reported to be achieving positive clinical, functional and health behaviour-related outcomes across a wide range of conditions and settings. ACP-led care was reported to be highly acceptable to patients and their families with most studies reporting high levels of satisfaction. Of note is that only five of the papers reporting on patients' health status were based on experimental (RCT)[82–84] or quasi-experimental study designs.[87 88] A very small number of studies reported resistance from patients towards ACP-led consultations but this was primarily linked to a lack of awareness of the ACP role and skill set.[115 127–129]

Outcome domain 2: quality of care outcomes

ACP roles and services were reported to lead to improved access to care and improved systems and processes of care delivery. Where reported, the papers suggest that most ACP roles and services achieved positive impacts on patient safety. However, six studies conducted in the last 3 years, reported statistically non-significant adverse events or complications associated with ACP roles and services (compared with set clinical targets or prevalence of adverse events prior to the introduction of ACP roles and services).[96–99 130 131]

Outcome domain 3: healthcare provider and stakeholder outcomes

ACPs were reported to have a positive impact on healthcare team performance in terms of creating capacity within the team for more flexible and efficient allocation of tasks and responsibilities. The impact on medical doctors' workloads was less clear cut. Some papers reported a beneficial impact, but others suggested that medical workloads may have become more complex (and sometimes more stressful), with some medical practitioners having to take on additional supervision and training responsibilities for the ACPs. Overall, the evidence suggested that ACP roles are well accepted and valued by the wider healthcare team and are perceived to be making important contributions to, and improvements in, patient care and service delivery. Key areas of concern (especially in primary care) related to the variability in ACPs' backgrounds, education and competence leading to uncertainty around defining an appropriate scope of practice. In many settings, highly specialist and more experienced ACPs were particularly valued. In general, ACPs were reported to find their work enjoyable, satisfying and interesting. Role tensions and lack of support were associated with settings where the ACP scope of practice was not clear or where the role was not well planned. A small number of papers (n=5),[123 125 132–134] particularly relating to non-medical consultant level roles, reported challenges with excessive workloads. ACPs perceived their roles as having a wide range of positive impacts for patient care, for other team members and for improvement of service delivery processes.

Outcome domain 4: healthcare use and costs

The evidence on appropriateness of care suggested that ACP-led care meets service/role objectives and leads to desired service outcomes. ACP-led care was reported to be associated with improvements in key areas such as hospital readmission rates and length of hospital stay. However, direct evidence on cost savings and revenue generation associated with ACP roles and services was limited and highly descriptive. Twenty-two of the papers reported actual or inferred cost savings and revenue generation. These were associated with: (i) reduced

running costs of ACP-led services compared with doctor-led services,[92 102 135–137] (ii) clinical interventions/procedures related to ACP services,[108 138–141] (iii) release of medical practitioner capacity[90 142] and (iv) reduction in healthcare use.[139 143–146] Only one (pharmacy-related) study included a robust economic evaluation.[86] Of note is that none of the papers took into account costs associated with role introduction or implementation (eg, education, training, supervision, mentorship). Likewise, single sites and small sample sizes limit the interpretations of cost-related data. None of the studies took into account the effects of ACPs' level of experience and 'service maturation' (length of time in role) on cost. In addition, none of the studies explored economic impacts of ACP roles/services for service users.

Outcome domain 5: organisational, professional and workforce issues

There was limited evidence related to the impact of ACPs on recruitment and retention of staff practising as ACPs or on their associated teams. The evidence suggested that ACP roles helped to create positive working environments. In some cases, however, particularly, for non-medical consultant level roles, more work may be needed to optimise workloads and to provide professional support structures.

Evidence related to ACP implementation

Just over one-quarter (n=51) of the 191 papers highlighted factors that hindered or facilitated the development, implementation and sustainability of ACP roles and services.[8 69 91 102 104 111–113 115 118 120–122 125 126 132–134 137 142 147–178] The majority of these papers were nursing-focused (n=24)[91 102 111 112 115 120–122 125 126 132 134 137 148 149 153 154 157–161 163 164 170–177] and based in primary care (n=26).[86 111–113 115 118 142 158–175 178] The evidence was interpreted into eight themes: (i) autonomy, (ii) rationale for ACP roles and services, (iii) role definition, (iv) role awareness, (v) funding, (vi) role evaluation and cross-organisational engagement, (vii) education, support and training and (viii) career progression and pathway. See online supplemental file 11 for a detailed table elaborating the meaning of each theme and linking each of the themes to the papers and sectors that related to them. Figure 4 depicts the different theme areas according to the frequency of reporting. The findings from the themes were then inferred in relation to factors that appeared to hinder and facilitate ACP role implementation.

Factors that hindered ACP role implementation

The main challenges reported for ACP role implementation were related to a perceived lack of integration of the ACP role into wider workforce plans, and a lack of clarity among organisations and stakeholders regarding role preparation, role definition and scope of practice. This in turn was linked to wide variations in educational backgrounds and competencies among current role holders (this appeared to be a particular problem for nursing and for the primary care sector). Lack of role clarity created tensions related to understanding role boundaries, developing a professional identity and enacting role autonomy. The papers identified a felt need for greater supervision, mentorship, continuing professional development (CPD) and a clear career pathway. Where these were not in place, this was seen to be linked to lack of funding and strategic planning. All these challenges were perceived to be linked to future role retention and role sustainability.

Factors that facilitated ACP role implementation

Conversely, the papers linked successful ACP role implementation/sustainability to role preparation (eg, roles that were integrated into strategic workforce plans with adequate funding attached), role clarity, provision of ongoing CPD, mentorship and a clear career progression pathway. A sense of role clarity was linked to greater standardisation (of ACP education/training, of ACP scope of practice and of ACP titles), and greater awareness of ACP roles and scope of practice among relevant stakeholders. Likewise, the papers suggested that role performance was enhanced by consistent clinical governance processes, ongoing mentorship and continued professional development opportunities. Finally, the findings suggested that role sustainability would be enhanced by ongoing role evaluation and the development of a structured career pathway.

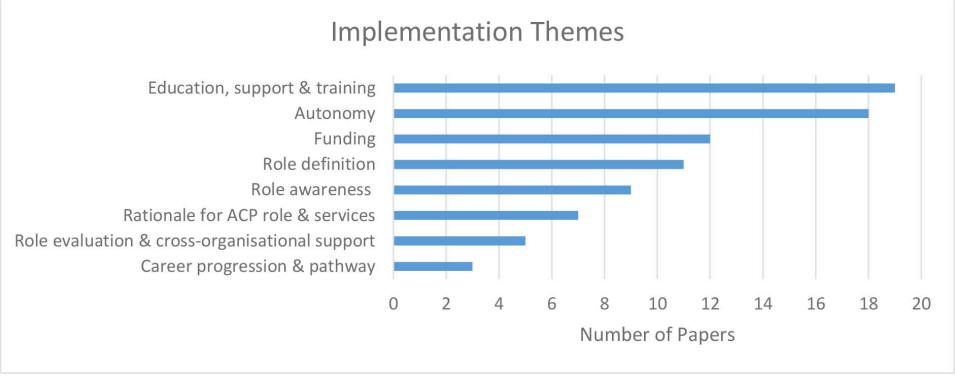

Figure 4 Frequency of implementation theme reporting.

DISCUSSION

This scoping review included 191 papers. The discussion sets out key insights derived from the review and contextualises these in terms of existing evidence and policy directives. Recommendations for future policy development and research are made.

Breadth of ACP role: adoption of ACP roles across sectors and professions

The review showed that most ACP roles are being implemented in a wide range of settings and specialisms in primary, secondary/tertiary and prehospital care sectors within the NHS. There was minimal evidence from other settings or sectors, however. In particular, there was a dearth of evidence on ACP in the context of mental health or learning disability settings or social work/social care settings. Contemporary developments in ACP suggest that these roles are being implemented much more widely than the evidence currently reflects.[179] There is a need, therefore, for ongoing research to capture the impacts of ACP roles across a wider range of healthcare settings.

Similarly, the majority of evidence in the review (93%) was focused on ACP roles within four professions (nursing, pharmacy, physiotherapy and radiography). This reflects the historical evolution of ACP in the NHS, but suggests that there is a need for more research to create an evidence base for ACP within the other professions.[38 41 51 180–182]

Outcomes and impacts of ACP roles

Due to the highly heterogenous aims and contexts of the papers and the large number of small-scale descriptive studies, evaluations and audits, it is not possible to draw definitive conclusions regarding the outcomes and impacts of ACP roles and this was not the aim of this review. Scoping reviews provide a descriptive summary of evidence (rather than a synthesis aiming to definitively assess effectiveness of an intervention), moreover, they do not include a quality assessment of the studies. With these caveats in mind, the current evidence nonetheless suggests that ACPs are achieving beneficial outcomes for patient care across a range of clinical, functional and behavioural domains and are having a positive impact on service objectives around safety, efficiency and accessibility. This is consistent with systematic reviews of international evidence on advanced roles across settings, professions and sectors.[33 35 40 47 50 53 183–186] The current evidence from the UK reports that patients/families are satisfied with ACP-associated care. In particular, they appreciate the person-centred approach and highly developed communication skills that ACPs, as experienced healthcare professionals, often bring to their role. These findings are in line with the international evidence on advanced level roles.[30 33 35 39 40 43 47 50 53 183–186] A minority of studies reported that patients were sometimes uncertain about receiving ACP-led care.[115 127–129] This was primarily related to a lack of understanding of ACP skills and roles. Hence, this finding suggests that it is important to raise awareness among the general public about ACP roles and about the safety and quality of care that they provide.

In line with the international picture,[187] the review found limited evidence regarding the cost-effectiveness of ACP roles. Several studies suggest the potential for considerable cost savings and revenue generation, but a lack of robust full economic evaluation limits the ability to draw any further conclusions. Thus, future research should include a full economic evaluation.

Only 10% of the papers reported directly on patient safety-related outcomes. Although there were few papers, they reported ACP-led care to be safe and beneficial (eg, reducing errors in patients' medications through medication review and reconciliation, medicine optimisation, reducing prescriptions for patients, promoting a healthy lifestyle and preventative interventions and adhering to standards of care). Only six papers (relating to three clinical settings) reported statistically non-significant adverse outcomes.[96–99 130 131] The lack of reported adverse outcomes in the overall body of evidence is encouraging but also raises questions about potential publication bias. Given the small number of papers focusing on this area, additional investigations may be required to establish the safety of ACP-delivered care more confidently (such as an analysis of serious incident reports). Future research should include patient safety-related outcome measures.

Implementation issues

The review showed that there is a wide proliferation of titles for ACP roles being used across the UK. This variability was found across professions and sectors. Similar variability has been reported in studies related specifically to nursing in the UK.[59 60] For example, Leary *et al*[60] found 595 different job titles for specialist and advanced nurses (within a dataset of 17 960 UK nurses collected over a 10-year period). The issue of ACP titles relates to other findings of the review suggesting that some of the barriers to smooth implementation of ACP roles were associated with a lack of understanding among relevant stakeholders of ACPs' role, scope of practice and capabilities. The variability in nomenclature was one of the issues contributing to this barrier.

A key action that could be taken to bring clarity and to aid mutual understanding of the ACP role would be to standardise job titles as appropriate to particular settings and professions. The multiplicity of titles currently in use appears to reflect an ongoing lack of clarity about whether ACP denotes a role, a level of practice or both[61] (HEE's 2017 definition of ACP affirms that ACP reflects a level of practice, not a role).[65] For example, within primary care, HEE has recently developed a core capability framework for advanced nursing practice in primary care, using the role title *Advanced Clinical Practice (Nurse)*—thus denoting the professional group.[188] Other ACP roles, however, such as the *Advanced Critical Care Practitioner* (ACCP), are explicitly multi-professional and are represented as a new role as well as an advanced level role (eg, the Faculty of

Intensive Care Medicine states that ACCP is a distinct role - they are 'clinical professionals' - that, with the right training, can be filled by individuals drawn from a range of different professional groups).[189]

The review also showed that the ambiguity caused by lack of standardisation in job titles was exacerbated by a lack of clarity around the definition and scope of practice of ACP roles, which were highly localised. This sometimes led to inter-professional tensions, role overlaps, misunderstandings of the role purpose and scope and a sense of dissonance around professional identity.[61] Similar issues have been reported in other (international) reviews.[190 191]

Another key factor influencing ACP implementation was identified as the variability in the education and training pathways underpinning ACP roles. Although the situation is changing now[188] (especially with the introduction of the Centre for Advancing Practice), historically ACPs have moved into their roles with widely varying educational backgrounds and via differing training routes. This has led to a situation where ACPs using similar titles may have quite different skill sets, knowledge, confidence and competencies. Similar challenges with variation in educational background have been reported in other international reviews,[34 64 185 191] suggesting an urgent need to standardise training pathways, to develop sector or specialty specific training and to communicate the nature of ACPs' capabilities across the health system. The review suggests that greater standardisation of education and training would enhance clarity regarding the ACP role among relevant stakeholders and facilitate the development of appropriate and consistent clinical governance processes.

The review highlighted a need for ongoing CPD, mentorship and support for ACPs, with several papers noting that this was not always available. This was partly attributed to lack of availability of relevant specialist training, lack

Table 4 Recommendations

Research	
Research focus areas	Ongoing research is needed to explore the impacts of ACP roles in a wider range of sectors/clinical settings (eg, mental health) and in a wider range of professional groups
	ACP-related research studies should include a full economic evaluation in order to develop a better understanding of the cost-effectiveness of ACP roles within the health system
	More research is needed to understand the impact of ACP roles/services on healthcare team performance and workload. There is also a need to evaluate long-term impact and evolution of roles
Methodological and conceptual issues	Research studies should adopt methodological approaches that are able to account for complexity (eg, case studies and mixed-method designs)
	Research studies should investigate the ACP role/service across a system or network (or across multiple sites) to enable organisational contexts and variations to be fully explored and understood
	Future research should take into account service maturation and the level of experience of ACPs
	Future research should investigate impacts of the ACP role across all four pillars and seek to explore and explicate the ways in which the four pillars are integrated within advanced clinical practice
	Future research should move beyond demonstrating ACP impacts within an implicit medical substitution paradigm (ie, ACP outcomes need to be compared appropriately and not just with medical professionals) and explicitly re-frame the enquiry within a service enhancement or service transformation paradigm
Patient safety and engagement	
	Additional investigations (eg, of serious untoward incident reports) may be needed to evaluate the safety record of ACP-led care
	There is a need for greater awareness raising of ACP roles and the benefits of ACP care among the general public to enhance their knowledge, understanding and acceptance of these roles
Policy	
Education and support	There is a need for standardisation of education/training routes
	Educational pathways need to cover specialist (as well as generalist) competencies
	There is a need to support provision of, and access to continuing professional development for ACPs
	There should be systems in place to provide ACPs with ongoing mentorship and clinical supervision
Governance/regulation	There is a need for standardisation of role titles and nomenclature. This may require regulation
	There should be greater consistency of clinical governance processes for ACP roles across settings/sectors. This may require regulation
	ACP roles should be incorporated into strategic workforce plans at national/regional level to avoid localisation (especially in primary care) and to maximise their impact across the system
	In order to maximise retention and job satisfaction, there is a need for clearer career pathways for ACPs
	Guidance for relevant stakeholders should be developed to assist with planning for ACP role implementation and evaluation (eg, toolkits)

of funding or high workloads which prevented uptake of training opportunities. The review also highlighted that a lack of career pathway in some settings potentially impeded the ongoing development, motivation and job satisfaction of ACPs. Thus, the evidence suggests that as the ACP workforce grows, there is a clear need to provide structured ongoing CPD opportunities as part of a structured career pathway.[61]

Methodological features of the evidence base

The evidence in this review included quantitative studies, evaluations and audits (focusing on measures of competence, performance and clinical/service outcomes), qualitative studies (providing more detailed analysis of the nature of ACP implementation) and mixed-method studies (providing data on both aspects). Over half the papers were based on studies conducted within the last 5 years. Hence, the review shows that the evidence base on ACP roles across the UK is contemporary and substantial, providing data on all review objectives.

The majority of evidence was based on relatively small-scale and single-site investigations focused on a limited range of outcomes. The evidence is thus highly localised and the preponderance of descriptive observational studies introduces a high potential for bias and lack of certainty around the reported outcomes. As a result, it is hard to judge how transferable the key findings would be across the country or to other organisational contexts or practice settings. The findings on implementation challenges likewise highlighted wide variability in organisational contexts depending on the local setting, yet suggested that organisational context (eg, related to role clarity or support) played a critical part in successful role/service implementation. The way in which organisational context influences the magnitude, breadth and sustainability of outcomes is a key question for future ACP research. Given the complexity of ACP roles, it may be beneficial for future research to move beyond single-site or single-design approaches and to more explicitly recognise ACP as a 'complex intervention' (ie, comprised multiple intersecting interventions being introduced into a dynamic multi-level system or network)[192–194] and to adopt more robust study designs to take complexity and organisational context into account. In-depth, mixed-method, multi-site case studies may help to address some of these challenges.[192]

Conceptual issues: making the full potential of ACP roles visible

This review provides an encouraging picture of the potential of ACPs to support the service transformations envisaged in the NHS Long Term Plan. Nonetheless, the review has highlighted some conceptual issues related to the current evidence that may be impeding the development of a full appreciation of the potential of ACP roles within the health system. There are three salient issues.

The first relates to an understanding of the multi-faceted nature of the ACP role. The review demonstrated that most of the existing evidence (79% of papers) on ACP roles primarily and exclusively evaluated activities or outcomes related to the clinical pillar. It is unclear whether the limited amount of evidence related to the other ACP role pillars reflects the fact that ACPs are indeed focusing mainly on the clinical aspects of their role or whether the research has simply not yet focused on a more in-depth evaluation of ACPs' work related to the other role pillars. There is very little UK or international evidence related to the impact of ACP in terms of the research or education pillars. In relation to leadership, the implementation challenges identified earlier (regarding role clarity/ambiguity, professional identity, inter-professional relationships, organisational support and mentorship) have also been identified in other international reviews as key factors that influence ACPs' ability to enact their leadership capabilities.[185 195–198] Overall, in order to more fully understand the impact of ACP roles across all aspects of the health system, future research should focus on a more explicit investigation of the ACP role as an integration of activity/capability across the four pillars rather than examining one aspect in isolation.

Second, it was notable that much of the research related to the clinical pillar of the ACP role involved a direct comparison of ACP outcomes with other professions (mainly comparing ACPs with medical professionals, rather than comparing them with other cadres or levels of professionals). As such, the evidence base reflects a strong implicit assumption of the ACP role as a primarily clinical or medical substitution role, rather than a role with the potential to enhance, augment or transform services and skills mixes through innovating within a multi-professional team and bringing additional skills to bear associated with the cognate profession. Thus, in order to more fully understand the potential for transformational impacts across a whole service, there is a need to undertake research that examines the potential for ACPs to improve care above and beyond substitution for other professions.[199]

Third, the review found that the majority of evidence reported on roles/services that were still relatively new (<2 years). It is important to recognise therefore that most studies are reporting on the performance and skills of relatively 'novice' ACPs. This suggests that many studies and evaluations of the ACP role are taking place when the role is still in the relatively early stages and may not yet reflect the full picture of what ACPs can accomplish once they achieve a higher level of expertise and once the service is well established. As time goes on, one might expect experienced ACPs to deliver an even better or broader set of outcomes across the four pillars. It will be important for future research to include long-term evaluations that investigate the effect that 'service maturation' has on ACP outcomes and implementation, and to differentiate between novice and experienced practitioners.[78 200]

Strengths and weaknesses of the review

This was an exceptionally comprehensive review, examining the evidence on ACP roles/services in the UK across all settings, sectors and professions. As such, it provides a state-of-the art overview of ACP impacts, outcomes and role implementation challenges. The use of the international recognised PEPPA-Plus[78] framework contributes to the development of an internationally transferable understanding of the factors influencing advanced practice role development, implementation and sustainability. The review was underpinned by a careful, comprehensive and systematic search strategy.

A potential weakness of the review is that the ambiguity and variability of ACP roles and titles means that some relevant studies may nonetheless have been missed or misclassified. In particular, there is ongoing ambiguity regarding the role of prescribing as a potential indicator of advanced clinical practice. The commissioned review requested the evaluation of the evidence base for advanced level practice beyond nursing, midwifery, allied health professions and pharmacy to include healthcare science, psychology, pharmacy, dental, social work, criminal justice and local authority. With such a broad range of professions, we took the view that qualifications such as non-medical prescribing could not be considered in isolation as a qualification representing advanced practice. Therefore, while for some professions such as nursing, independent prescribing is a critical component of advanced practice for others, such as social work, prescribing is not a requirement to practice at an advanced level.

Recommendations

The recommendations identified above are summarised in table 4 in terms of research, patient safety and engagement, and policy.

CONCLUSION

Due to government investment and current NHS policy imperatives, ACP is a rapidly evolving phenomenon in the UK, and it is likely that the snapshot of evidence presented in this report will quickly become out of date. Many of the challenges identified in this review are already being addressed (eg, through the educational governance process led by the Centre for Advancing Practice, through the development of sector-specific or setting-specific capability frameworks,[188] and through role implementation toolkits[201]). Further innovations have emerged more recently as a response to the coronavirus pandemic.[3] Going forward, it will be important to continue to evaluate, document and support this important area of health workforce development.

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Characterising the evidence base for advanced clinical practice in the UK: a scoping review protocol

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ABSTRACT

Introduction A global health workforce crisis, coupled with ageing populations, wars and the rise of non-communicable diseases is prompting all countries to consider the optimal skill mix within their health workforce. The development of advanced clinical practice (ACP) roles for existing non-medical cadres is one potential strategy that is being pursued. In the UK, National Health Service (NHS) workforce transformation programmes are actively promoting the development of ACP roles across a wide range of non-medical professions. These efforts are currently hampered by a high level of variation in ACP role development, deployment, nomenclature, definition, governance and educational preparation across the professions and across different settings. This scoping review aims to support a more consistent approach to workforce development in the UK, by identifying and mapping the current evidence base underpinning multiprofessional advanced level practice in the UK from a workforce, clinical, service and patient perspective.

Methods and analysis This scoping review is registered with the Open Science Framework (https://osf.io/tzpe5). The review will follow Joanna Briggs Institute guidance and involves a multidisciplinary and multiprofessional team, including a public representative. A wide range of electronic databases and grey literature sources will be searched from 2005 to the present. The review will include primary data from any relevant research, audit or evaluation studies. All review steps will involve two or more reviewers. Data extraction, charting and summary will be guided by a template derived from an established framework used internationally to evaluate ACP (the Participatory Evidence-Informed Patient-Centred Process-Plus framework).

Dissemination The review will produce important new information on existing activity, outcomes, implementation challenges and key areas for future research around ACP in the UK, which, in the context of global workforce transformations, will be of international, as well as local, significance. The findings will be disseminated through professional and NHS bodies, employer organisations, conferences and research papers.

Strengths and limitations of this study

- The review will provide a state-of-the-art picture of the evidence base (including outcomes and key implementation issues) for advanced clinical practice roles in the UK.
- The review will highlight key research gaps and research needs for workforce transformation around advanced clinical practice in the UK.
- Although the review has a UK focus, lessons learnt from this context will be of international interest, given that countries all over the world are engaged in similar workforce transformations through advanced health worker role development.
- The multiprofessional and multisectoral focus will enable important comparisons to be drawn across these dimensions, but may limit the potential for in-depth analysis of profession-specific or sector-specific issues.

INTRODUCTION

Rationale

A global health workforce crisis, coupled with ageing populations, wars, escalating costs and the rise of non-communicable diseases is prompting all countries to consider the optimal skill mix within their health workforce.[1–6] The development of advanced clinical practice roles for existing cadres is one potential strategy that is being pursued.[7–9] The origins of advanced clinical practice trace back to nursing in the USA and Canada in the mid-1960s, followed by the UK in the mid-1980s, then New Zealand and Australia in the 1990s.[7 10] Advanced nurse practitioner roles evolved out of medical staff shortages, implementation of the European Working Time Directive (which reduced junior doctors' working hours in the UK), changing healthcare population needs and increased ambitions for professional status and clinical career progression.[11] More recently, other health and care professions have also adopted advanced, extended and expanded clinical roles[12–17] and new non-medical cadres such as physician associates have been developed.[18]

In the UK, health has been a devolved responsibility of its four countries (England,

Scotland, Wales and Northern Ireland) since the late 1990s and each country has its own 'National Health Service' (NHS). The NHS in each country is tax-funded services, providing universal health coverage, and, although some policy differences exist, they share many similar goals and challenges.[19] Health services across the UK are actively exploring the development and implementation of new and advanced clinical roles to address workforce challenges and transform the way that services are delivered.[20–25] For example, in England, an 'NHS Long Term Plan'[26] sets out a vision for healthcare for the next 10 years, which includes the development of new integrated systems of care that aim to cross traditional divides between health and social care sectors and related professional groups, and enable more efficient and innovative ways of working.[27 28] New service models (referred to as 'Vanguards' in England and delivered through 'Sustainability and Transformation Partnerships') are taking a wide variety of forms.[29] For example, some areas have integrated primary and acute care systems along with mental health services. Others have created multispeciality community care providers focused on providing better care and rehabilitation services for older people.[28]

Across the UK, plans have been developed to give an immediate focus on workforce actions required to implement such new models of care organisation and delivery.[10 26 30–32] These recognise the need to invest in the development of new roles and advanced skills to enable workforce expansion—to be achieved by developing experienced professionals practising to the full extent of their education and training. This recognition has a twofold purpose: experienced health and care professionals will be enabled to work across professional boundaries and take on an extended scope of practice thus addressing workforce needs while also providing career development and rewarding opportunities to improve retention.[21]

Advanced clinical practitioners (ACPs) are now being developed throughout the UK across a wide range of professional groups such as nursing, pharmacy, paramedicine, physiotherapy, radiotherapy, occupational therapy and others (see online supplementary file 1 for a list of professions/occupational groups that are being considered for the purposes of this review).[33] Across the NHS, these occupational groups are collectively referred to as 'health and care professionals'.[33 34] The term 'care professional' does not denote a specific professional role, but rather, refers to the fact that certain professions or occupational groups may work within or across a range of settings and sectors in addition to more traditional health services, for example, within integrated care systems, in social care, in the private or voluntary sectors (eg, care homes) or in criminal justice settings.[33]

These UK-wide policy developments have brought to the forefront ongoing concerns around significant variations that exist in the definition, nomenclature, implementation, regulation and education of ACP roles across different professions and settings. In contrast to countries where there are clear routes for advanced practice education, credentialing and regulation, there is a recognition that in the UK, especially within nursing, there has historically been considerable and confusing variation in advanced level role titles, job descriptions and role profile.[12 35] One recent UK study, for example, found 595 different job titles that denote specialist and advanced nursing practice roles. Likewise, there is currently significant variation in educational preparation across roles and in the content of existing advanced clinical practice training programmes.[35–37] This variability impedes workforce planning and raises concerns about patient safety.[36]

In order to address these issues in England, the workforce transformation agenda is being supported by a national non-departmental public body, 'Health Education England' (HEE). HEE's remit includes the education and training of individuals working at advanced levels through the development of advanced skills and educational training standards that can apply across a wide range of professional groups.[26] In 2017, HEE published a *Multi-professional Framework for Advanced Clinical Practice for England*[33] providing a definition of ACP stating that: 'Advanced clinical practice is delivered by experienced, registered health and care practitioners. It is a level of practice characterised by a high degree of autonomy and complex decision making. This is underpinned by a master's level award or equivalent that encompasses the four pillars of clinical practice, leadership and management, education and research, with demonstration of core capabilities and area specific clinical competence'. The release of the HEE ACP Framework aims to support the implementation of advanced level clinical practice in health and related environments in order to ensure that health and care practitioners are supported in their role. The framework provides a basis to align existing educational curricula and competence frameworks and aims to create greater consistency across advanced clinical practice as well as inform new developments. The HEE ACP framework currently includes 'consultant level' practice, a role in the NHS Career Framework representing a more senior level of practice and service leadership that encompasses but goes beyond ACP capabilities.[38 39] Within NHS Career Frameworks, advanced practice roles are deemed to be at level 7, whereas consultant practice roles tend to be level 8 (where level 5 represents the starting point for newly registered practitioners).[40]

The HEE ACP framework applies specifically to England, but has been developed in consultation with stakeholders that represent professions across the UK (eg, Professional Bodies and Royal Colleges) and has drawn on similar advanced practice frameworks that exist in the other three countries.[23–25]

As recognised in the HEE and other ACP frameworks, it is proposed that ACPs are educated to masters level (or equivalent) and have developed the knowledge and skills to allow them to take on expanded roles and scope of practice caring for patients (HEE refers to 'masters level' as an award that uses the relevant descriptors set at academic level 7 by the Framework for Higher Education

Qualifications).[33 41] According to the HEE ACP framework, all health and care professionals working at an advanced level of practice should have developed their knowledge and skills to the level indicated in the core capabilities, across four pillars of advanced clinical practice: (1) clinical practice, (2) leadership and management, (3) education and (4) research.[33] A key characteristic of professionals practising at an advanced level is the ability to work autonomously, thereby enhancing capacity and capability within multiprofessional teams. ACPs aim to improve clinical continuity, provide more patient-focused care and help to provide safe, accessible and high-quality care for patients.[42]

Across the UK, there are currently different ways to gain and develop advanced practice capabilities depending on the nature and scope of advanced health and care practitioners' practice.[33] In England, for example, as part of HEE's drive to standardise advanced level practice, a national 'Centre for Advancing Practice' is being established. The Centre is a partnership between HEE and NHS England, NHS Improvement and other national stakeholders. The Centre's role is to strengthen governance arrangements for advanced level practice by recognising practitioners working at an advanced level through two routes: (1) accreditation of university education programmes, and (2) an equivalence recognition route. Individuals and health and care providers may access different routes to evidence achievement of advanced level capability and competence through accreditation or recognition of prior learning, work-based learning.[36 37]

HEE is currently developing an approach to evaluate 'equivalence' that uses assessment processes established by the Academy of Health Care Science which defines equivalence as 'a methodological approach where the outcomes of two processes are directly comparable even though the paths to achieving them are different. When equivalence is shown to exist between a new qualification and the qualification or experience an individual already has, further education or training becomes unnecessary'.[43] The process of determining equivalence is a subjective process based on an individual demonstrating appropriate mapping of their training, education and experiences to a set of predetermined standards—in this case, the ACP Framework standards and HEE's standards for the equivalence route.[33] However, HEE's precise methodology and approach for assessing equivalence are currently still under development.

As this national work commences, there is an urgent need to understand more fully the current context of, and evidence around, ACP across the specialties, sectors and the multiprofessional workforce in different roles across different care pathways to inform a baseline understanding of the contribution and challenges of ACP in the health service. This proposed scoping review seeks to address this need by identifying and mapping the current evidence base around ACP in the four UK countries. This will enable a UK-wide as well as country-specific picture of the current evidence on ACP to be identified.

Previous systematic reviews

There have been several systematic reviews undertaken to determine the feasibility, impact and implementation challenges around ACP, specific to different professional groups.[13–16 44–64] These reviews show that, globally, there is good evidence (especially related to nursing) to suggest that ACPs practise safely and can achieve good patient outcomes and high patient satisfaction. Evidence on cost-effectiveness and impact on service organisation/efficiency, however, remains equivocal.[20 46 65] Implementation challenges include poor role recognition, lack of support and lack of integration within the wider healthcare system. More evidence is needed on how to support, scale up and sustain ACP-related innovations.[66 67] Most existing reviews have had an international focus making it hard to determine the applicability of their findings specifically to the UK NHS context, and to identify the key gaps in the evidence base that are specific to the UK context. In addition, the profession-specific focus of previous reviews limits the ability to conceptualise the evidence base for the ACP role on a more sector-specific or speciality-specific basis. Some reviews have been UK specific but have been restricted to consultant-level practice and to just one professional group.[22 39 68] In order to inform UK service-wide transformation, there is a pressing need to map out the existing UK evidence around ACP. In doing so, important areas for future research and development will be identified, which, in the context of global workforce transformations, will be of international, as well as local, significance.[6 69–71]

Aim and objectives

Aim

To establish the current evidence base underpinning multiprofessional advanced level practice from a workforce, clinical, patient and service perspective in the UK.

Objectives

1. To identify what evidence exists about implementation, impacts and outcomes of advanced clinical practice in the UK across (a) different professions, (b) different sectors and (c) different specialities.
2. To identify the challenges reported to affect advanced level practice implementation by sector, specialty and profession in the UK.
3. To identify and describe the different types of outcomes and impacts of advanced level practice roles that have been reported, and to summarise existing knowledge on these, by sector, specialty and profession in the UK.
4. To identify key gaps in the existing evidence base and the most urgent questions for future research.
5. To consider how advanced level practice is being defined, conceptualised and applied across professions and the public, private and voluntary sectors of service provision.

METHODOLOGY AND METHODS

Scoping review design

This scoping review will follow a framework proposed by the Joanna Briggs Institute (JBI),[72 73] which builds on previous guidance developed by Arksey and O'Malley[74] and Levac *et al*.[75] The JBI framework[72] recommends organising the review process into nine stages:

1. Defining and aligning the review objectives and questions.
2. Developing and aligning the inclusion criteria with the objective and questions.
3. Describing the planned approach to evidence searching, selection, extraction and charting.
4. Searching for the evidence.
5. Selecting the evidence.
6. Extracting the evidence.
7. Charting the evidence.
8. Summarising the evidence in relation to the objectives and questions.
9. Consultation (throughout).

While the JBI framework[72] informs the overall conduct of the scoping review, the 'Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) extension for Scoping Reviews'[76] has also been used to guide the reporting of this protocol, and will also subsequently be used to structure the reporting of the full review.

Review registration

This review title has been registered with Open Science Framework.[77]

Review team

The review is being conducted by a team comprised of multiprofessional expert clinicians, academics and policymakers in the field of ACP (RT, RP, JC, RC, RK, JMcL, PH, PT), an information scientist (JE), a methodologist (CE) and a research fellow (BP). The team reflects multiprofessional expertise in nursing (CE, RP, BP, JMcL, RT), physiotherapy (JC, RC, PH), pharmacy (RK) and criminal justice work (PT).

Patient and public involvement

The review team also includes a senior lay representative within HEE (PRBH) who has been involved from the outset. He has helped to shape the review aims and objectives and will seek to ensure that the review makes patient and family concerns a key focus at every stage.

Consultation

As per JBI guidance,[72] consultation is being built into the review from the outset. The ACP steering committee within HEE and professional bodies will be regularly consulted to help with (1) clarifying profession-specific nomenclature and operational definitions around ACP and (2) identifying key papers and grey literature. Towards the end of the review, there will be a national consultation event where the key findings are shared with invitees across all professions, sectors and specialities. Stakeholder views, including our public representative, will be sought to elucidate the context-specific significance of the findings and to help shape policy and practice-relevant recommendations.

Eligibility criteria

Constructing the eligibility criteria for inclusion of papers within this review has been highly challenging due to: (1) the broadness of the definition of ACP, (2) the varying interpretations of ACP across different professions, (3) the widely varying terminology of ACP-related roles and titles both within and across professions and (4) the wide range of professions and occupational groups involved. It is well recognised that achieving clarity and consistency around ACP is still a work in progress. Indeed, this review is one of multiple HEE-funded projects underway designed to promote clarity and stability within this area of workforce policy by establishing a system benchmark of the existing field of evidence. In particular, there are grey areas, overlaps and blurred boundaries between advanced and consultant-level practice and between advanced, extended, expanded and specialist practice. Within these grey areas, we have attempted to construct clear inclusion and exclusion criteria for the review, but recognise that these may be contested within particular professions, and, as per the iterative nature of scoping reviews,[72 74 75] may be slightly revised as the process gets underway and as consultation continues. The inclusion criteria set out in table 1 use and expand on the mnemonic described by JBI for question formulation for scoping reviews (population, concept, context).[72]

Information sources

The following bibliographic databases will be searched in the period October 2019–March 2020 using the date range of 1 January 2005 to the present:

- Medline (specific segment, Ovid Medline and Epub Ahead of Print, In-Process and Other Non-Indexed Citations, Daily and Versions), 1946 to current (updated daily).
- Health Management Information Consortium 1979 to present (updated bimonthly).
- Allied and Complementary Medicine on Ovid, 1985 to present (updated monthly).
- Embase on Ovid, 1980 to present (updated daily/weekly).
- PsycINFO on Ovid, 1806 to present (updated weekly).
- Cumulative Index to Nursing and Allied Health Literature (CINAHL) Plus with Full Text on EBSCOhost, 1937 to current.
- SportDiscus on EBSCOhost, 1800 to current.
- Applied Social Sciences Index and Abstracts on ProQuest, 1987 to current.
- Occupational Therapy Systematic Evaluation of Evidence (OTseeker) (http://www.otseeker.com/).
- Physiotherapy Evidence Database (https://www.pedro.org.au/)
- The Cochrane Library.

Table 1 Inclusion and exclusion criteria

Inclusion criteria	Rationale for inclusion and exclusion
Population: All health and care professions within the NHS and related environments, for example, local authority, criminal justice, NHS commissioned voluntary and private services.	The HEE definition of ACP is for all health and care related professions currently recognised as potentially able to become ACPs. This is deliberately broad as a key aim of the review is to establish the nature of evidence that exists in the UK on advanced level practice. See online supplementary file 1 for a full list of professions and occupational groups included in this review. It is important to note, however, that the list in online supplementary file 1 does not represent a final definitive list of all professions/occupational groups that are eligible for ACP recognition. As noted above, the criteria, definition and scope of ACP within different groups is a contested and shifting area of healthcare policy in the UK. Hence, the list represents a 'work in progress' of HEE's considerations on the issue at the time of this particular review.
Concept: Implementation of advanced level practice	The HEE definition conceptualises advanced clinical practice as a level of practice rather than as a specific role.[33] Hence, the review uses the HEE definition as a starting point to determine eligibility of a paper, but recognises historical and profession-specific variation in how the definition may be interpreted (and how it may have been described in the past prior to the 2017 HEE definition). For the purpose of this review, advanced clinical practice will include consultant level practice (this is a role in the NHS representing a more senior level of practice and service leadership that encompasses but goes beyond ACP capabilities).[38 39] Where other terms and titles are used, papers will be scrutinised to establish whether or not the role being described meets the characteristics of advanced clinical practice set out in the HEE definition. For example, common roles that will need scrutiny on a paper-by-paper basis include roles that are referred to as 'extended scope', 'expanded', 'specialist practice', 'prescribing' or 'practitioner' roles (see online supplementary file 2 for the full search strategy where we have attempted to elaborate all possible synonyms for advanced level practice roles across all professions). This review will include papers that report on the *implementation* of advanced level practice roles. It will not include papers that report on issues around the initial educational preparation related to advanced clinical practice. This has been addressed in a recent systematic review[37] and is also a key area of enquiry within a separate HEE-funded project. However, the scoping review will, for example, include papers that report on *further* educational or training issues for practitioners who are already working in advanced level roles—if these are mentioned in relation to role implementation challenges. We will include papers that report empirical data on the views, outcomes and experiences related to advanced clinical practice roles that are being, or have been, implemented. We will not include opinion pieces or papers that report stakeholder views of potential new ACP roles or services (ie, where they do not report actual experience of a role).
Context: *Country:* UK—England, Scotland, Wales and Northern Ireland *Sector:* Health and related environments, for example, local authority (social care), criminal justice, NHS commissioned voluntary and private services. *Specialty:* any	This review has been commissioned to inform policy for the NHS in England. However, due to the similarities in health service context and ACP role development across the UK countries, the review will include evidence from all UK countries. We will not include evidence from any other countries however. We argue that where reviews are designed to be highly policy relevant and context specific, a single rather than multicontext focus is appropriate.[91 92] In addition, the UK NHS services have unique structures, roles and processes which may make transferability of findings from other health system contexts problematic. However, international studies that include relevant evidence from the UK (provided that is it separately reported) would be included. This is deliberately broad as a key aim of the review is to establish the nature of evidence that exists in the UK on advanced level practice. This is deliberately broad as a key aim of the review is to establish the nature of evidence that exists in the UK on advanced level practice.
Language: English	Only papers retrieved as English-language records (literature database records or full-text articles in English) will be included.
Date range: 2005–present	The rationale for the date limit of 2005 is due to the timing of key policy developments around advanced clinical practice. Prior to this date, most advanced clinical practice roles and research were limited to nursing and referred to a wide range of highly inconsistent titles, educational preparation, role definitions and scope of practice.[12] In 2005, the Department of Health published an evaluation of extended formulary independent prescribing for nurses and this was a precursor to further policy publications around advanced roles, particularly related to nursing.[93] In 2006, the Department of Health published 'Modernising Nursing Careers: Setting the Direction' that identified the changes in healthcare delivery and structure and the need for nurses to advance their skills in a more formalised way.[94] The work from this document first outlined the four pillars of advanced clinical practice which later were adopted into a Scottish Government Toolkit.[95] This toolkit initially focused on advanced nursing practice but it supported ongoing development to enhance understanding of the role across other health and care professionals and across the four pillars of advanced clinical practice. From an allied health professional perspective, in 2006 a systematic review was conducted that established an agenda for extended role development for AHPs.[13] Literature from 2006 onwards may include reference to AHPs working at an advanced level of practice. Similarly, within pharmacy, an 'Advanced and Consultant Level Framework' was developed in 2004 and has since been validated across pharmacy at all levels of practice.[96 97] This work informed the Royal Pharmaceutical Society publication Advanced Pharmacy Framework published originally in 2010, updated 2013.[96]

Continued

Table 1 Continued

Inclusion criteria	Rationale for inclusion and exclusion
Types of evidence to be included: Published papers or published conference abstracts reporting empirical data from primary research or service evaluations. Grey literature.	We will include any study design. Grey literature may include doctoral theses or unpublished research or evaluation reports (however, in order to maintain quality, the latter will be included only if they provide detail of how the data were produced and are linked to an established registered body—for example, a university, an NHS or other governmental organisation or a registered non-governmental organisation).[98] Reference lists of relevant systematic reviews will be searched for UK-focused studies.

ACP, advanced clinical practice; AHP, allied health profession; HEE, Health Education England; NHS, National Health Service.

- JBI Evidence Based Practice (EBP) database on Ovid (name changed to 'JBI Evidence Synthesis' from January 2020).

Grey literature, including theses repositories and some web-based discipline-specific research report collections, will also be searched (search strategies will be adapted accordingly for the discipline-focused resources):

- ProQuest Dissertations & Theses A&I, 1743 to current.
- Dietetics/nutrition (https://www.pennutrition.com/index.aspx)
- Osteopathic research (http://www.osteopathicresearch.com/).
- Osteopathic medicine (https://ostemed-dr.contentdm.oclc.org/).
- Ambulance research (paramedics) (https://amber.openrepository.com/discover).
- Speech Pathology Database for Best Interventions and Treatment Efficacy (https://speechbite.com/).

The search strategies have been developed by an experienced research information specialist (JE) and refined through team discussion and identification of discipline-specific terminology from health services organisations and associations such as:

- The NHS HEE Health Careers website (https://www.healthcareers.nhs.uk/explore-roles/allied-health-professionals/roles-allied-health-professions).
- The Northern Ireland DoH Allied Health Professional Groups (https://www.health-ni.gov.uk/articles/introduction-allied-health-professionals-ahps).
- The NHS Scotland list of Healthcare Support Workers—AHP and Nursing Support Staff (http://www.knowledge.scot.nhs.uk/hcsw/professional-communities.aspx).
- The NHS Wales list of allied health professionals (http://www.weds.wales.nhs.uk/allied-health-professionals).
- The Health and Care Professions Council (https://www.hcpc-uk.org/about-us/who-we-regulate/the-professions/).

In addition, relevant professional associations and society websites have been scrutinised to identify relevant terminology to include for each of the professions identified by HEE for inclusion.

In the course of researching the terminology and indexing relevant for each of these specific roles, an example of an existing search filter, for paramedics, was identified[78]:

"Ambulances.sh OR Emergency Medical Technicians.sh OR Air Ambulances.sh

OR paramedic*.tw OR ems.tw OR emt.tw OR prehospital.tw OR pre-hospital.tw

OR first responder*.tw OR emergency medical technicians.tw OR emergency services.tw OR Ambulance*.tw OR HEMS.tw OR field triage.tw"

This filter, which the paper states as being optimised for specificity, was used as a template, with some modifications, to develop parallel search statements for the other roles.

Online supplementary file 2 is annotated to show the different search statements developed for each professional group; these will be combined with search statements devised to retrieve terms relating to 'advanced practice' and its synonyms. The final answer sets, after limiting to UK-focused studies and to the date range from 1 January 2005 to present, will be imported to an EndNote library and duplicates across the different database searches identified and removed.

Search limits and exclusions

Several discipline-specific strategies include abbreviations for the role titles, which also apply in other contexts, and therefore statements required modification with excluded phrases to avoid high selectivity at the expense of the required specificity.

Indexing, as initially explored in Medline, ideally allows the use of terms for both the discipline (eg, occupational therapy) and the role (eg, occupational therapists), to ensure a full retrieval of relevant papers. However, this is not consistently available, either within a single database (eg, only "Podiatry" is available as a Medical Subject Heading (MeSH) term for chiropody/podiatry, no terms appear to be established currently for the corresponding roles), or across databases (eg, for dietitian or dietetics, the MeSH preferred terms in Medline are Nutritionists and Nutritional Sciences, respectively; in CINAHL, the terms are Dietitians and Dietetics, respectively).

In order to limit retrieved studies to those conducted in the UK, published UK-specific search filters (with some modifications) will be applied.[79 80] The terms "National Health Service" or "NHS" are included as proxies for UK

terms. See this section of the strategy in online supplementary file 2 for further details.

Selection of sources of evidence

All the identified citation records from the information search will be exported into EndNote V.X8 and duplicates will be removed. Titles and abstracts of the remaining citation records will be screened for inclusion against the inclusion criteria for the review. Full-text articles of records that appear to meet the inclusion criteria will be retrieved and screened against the inclusion criteria, and those that fulfil all the inclusion criteria will be included in the review. All the above steps will be conducted by two reviewers (BP and CE) working independently at first and then meeting to compare the results and reach agreement. Any discrepancies will be resolved through consensus and consultation with the review team, and, where agreement cannot be reached, with key professional leads in the UK. Studies not meeting the inclusion criteria will be excluded. Reasons for exclusion will be provided in an Appendix in the final review report. The final search results will be reported in a PRISMA flow diagram.[81] Authors of articles will also be consulted for additional information where necessary during the study selection process.

Data charting process and data items

Extraction and charting of study characteristics and study findings will be guided by the 'Participatory Evidence-Informed Patient-Centred Process-Plus' (PEPPA-Plus) framework.[67 82] This framework provides a broad, yet comprehensive approach for advanced clinical practice role evaluation. The framework was initially developed in 2004[67] and, since then, has been used to evaluate advanced practice implementation and outcomes in a wide range of international contexts and in a wide variety of settings.[82 83] To date, it has been mainly used within the nursing profession as this profession has a long history of advanced level practice role implementation. On careful review and consultation, the review team feel that the main domains within this framework are not profession specific and hence it would be suitable for the current project. Using an established framework for the review, will, we hope, enable a more straightforward comparison with international evidence on ACP and will also facilitate benchmarking of any future evaluation research on ACP (assuming that such evaluations will collect data in the same or similar domains).

The PEPPA-Plus framework draws on the work of Donabedian[84] and includes information on three domains (structure, process and outcomes) related to ACP roles. In terms of structure, the framework includes information about important structural factors that affect ACP role implementation (eg, title, remuneration, regulatory and governance frameworks, educational preparation, stage of role implementation, setting, years of experience). In terms of process, the framework explores factors such as the tasks and activities undertaken by the ACP, the frequency and intensity of ACP/patient interactions (the 'dose effect'[66]) and the barriers and facilitators to role implementation. In terms of outcomes, these are explored in relation to five categories (each of which has several subcategories, and two of which have sub-sub categories): (1) patient and family (includes health status, health behaviours and perceptions of care and healthcare experiences); (2) quality of care (includes patient safety, processes of care and access to care); (3) healthcare provider, team and stakeholder (includes healthcare team performance, knowledge and skills, acceptance and satisfaction with the ACP role, ACP role support, job satisfaction); (4) organisation (includes recruitment and retention) and (5) healthcare use and costs (includes length of stay, readmission rates, waiting times, cost avoidance and cost savings). New data items not included within the framework may be identified and incorporated as the review progresses. This iterative approach is consistent with scoping review guidance[72 74 75] and also with established approaches to using a framework approach in evidence synthesis.[85]

Extraction of data on study characteristics and study findings will be managed in two different ways. Data on study characteristics (including information relating to the 'structural' domains of the PEPPA-Plus framework) will be extracted using a template which has been developed through consultations held by the research team and which will be analysed using an Excel spreadsheet. As noted above, this template may be refined through future consultations. Authors of studies will be contacted to obtain missing data where necessary and possible. Full details of the study characteristics template are provided in online supplementary file 3.

Data relating to study findings will be managed using NVIVO. PDF copies of all included papers will be imported into NVIVO (V.12 Pro[86]) software. Study findings will be coded against the key process and outcome domains specified in the PEPPA-Plus framework.[82 83] Full details of this initial set of process and outcome categories and subcategories are provided in online supplementary file 4.

Charting and extraction will primarily be undertaken by one researcher (BP), although other team members may also be involved depending on the volume of papers that are eventually retrieved. This is a relatively common approach in scoping reviews and is considered appropriate as the focus is on extracting data for descriptive summary rather than to generate numerical estimates of effectiveness.[87 88] Nonetheless, strict attention will be paid to ensuring consistency and quality. This will be achieved in the following ways: (1) initially, BP and CE will independently chart/extract data from an initial set of 10 papers using different study designs and compare results. This will be done in order to develop a clear and unambiguous understanding of the meaning of each category/subcategory within the data extraction templates and of how differently reported data items would be categorised; (2) this will be followed by another round of independent data extraction, comparison and discussion by CE

and BP for another group of five papers (this process will continue until the team is satisfied that clear and shared understandings and a consistent approach have been achieved). In order to ensure transparency and rigour, this quality assurance process will include taking detailed notes of any areas of discrepancies or ambiguities and how they were resolved; (3) BP then will proceed to chart/extract data from the remaining papers; however, CE will read all the papers, check the accuracy of coding and identify any other issues that may need clarification; (4) finally, throughout the process, there will be weekly team meetings during which any ambiguous items or other issues are discussed and a way forward agreed. If other team members become involved in data charting/extraction, the training and quality checking process described above will be repeated.

Critical appraisal of individual sources of evidence

As a scoping review, the purpose is to map out the existing evidence and to summarise key study findings within different domains rather than to evaluate the quality of individual studies to determine risk of bias related to particular outcomes. Hence, in line with the review aim of providing an overview of the existing evidence base, rather than undertake a formal quality assessment of each study, we will assign a 'level of evidence' rating to each study using JBI's well-established categorisation.[89] In this way, it will be possible to evaluate the type of research that has been undertaken in terms of established evidence hierarchies, and, accordingly, to provide a commentary on the relative rigour of the existing evidence base.

Synthesis of results

Findings will be summarised and presented as per the main domains of the data extraction templates, configured in such a way as to address the key review objectives. Data relating to study characteristics will mainly be presented as a descriptive numerical summary accompanied by an explanatory narrative[75] (eg, the percentage of studies that have been undertaken within different professions). Likewise, data related to study findings will be mapped within the categories of the PEPPA-Plus framework[83] and will be reported as a narrative summary.[90] Findings will be presented to explore sector-specific, speciality-specific and profession-specific commonalities and differences. Where possible, findings will be presented in tables or using concept network maps to provide a visual representation.

Dissemination

The scoping review results will be disseminated in three ways: (1) submission of a policy report to HEE, (2) publication in peer-reviewed journals (it is envisaged that at least two publications will be developed—one focused on primary care and one on acute care) and (3) presentation at HEE and national/international conferences.

CONCLUSION

This scoping review will provide comprehensive information on the body of research that exists on advanced clinical practice in the UK, spanning design, introduction, implementation and evaluation. Accordingly, it will be possible to map out the evidence on the impact of advanced clinical practice role and services on patient and families, healthcare providers and stakeholders, healthcare utilisation and cost, and quality of care. In addition, it will be possible to highlight the barriers and facilitators of the introduction and implementation of advanced clinical practice roles and services across different health and health-related sectors. Moreover, it will be possible to emphasise some of the organisational, professional and workforce issues associated with advanced clinical practice. Conversely, it will show areas that have been under-researched and may require further investigation and evaluation. This review will make an important contribution to policy development around ACP in the UK, and, in doing so, will highlight issue of wider interest to the international community working in this field.[6 8]

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Contributors CE: coordinated and conceptualised the project; developed all aspects of the project methodology and manuscript. BP: drafted the Methods section of the manuscript and reviewed and commented on the whole manuscript. RP: drafted the Background section; reviewed and commented on the whole manuscript. JE: developed the search strategy; reviewed and commented on the manuscript. PaH, RK, JM, RT, and PeH: reviewed and commented on the manuscript. PT: reviewed and commented on the manuscript; developed implications for non-traditional healthcare settings. JC and RC: contributed to conceptualising the project; reviewed and commented on the manuscript.

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Competing interests RP is a committee member of the Association of Advanced Practice Educators—UK (AAPE-UK) and represents AAPE-UK on the Health Education England (HEE) ACP Steering Group. RC is Clinical Lead for Musculoskeletal Practitioners in Primary Care & Project Director for the Centre for Advancing Practice, Health Education England. JC is a Research Advisor to Health Education England.

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Supplementary File 10: Outcome Domains and Sub-Domains

Outcome Domains	Primary Care No. of Papers & Refs	Secondary/Tertiary Care No. of Papers & Refs	Emergency & Pre-hospital Care No. of Papers & Refs	Other/Mixed No. of Papers & Refs	Total
Patient & Family	N=43 1-43	N= 27 44-70	N=2 71, 72	N=1 73	**73**
Patients' Perceptions and Experiences of ACP Roles	N=41 1-23, 25-27, 29-43	N=22 45-64, 66, 67	N=2 71, 72	N=1 73	66
Health Status & Behaviour	N=16 1, 2, 6-8, 13, 21-27, 29-31, 39	N=8 44, 58, 60, 65, 67-70	N=2 71, 72	N=0	26
Healthcare Provider & Stakeholder	N=45 1, 3, 4, 8, 10-12, 15, 18-21, 23-28, 31, 33-36, 40-43, 74-91	N=38 44-46, 52, 53, 57, 64, 66, 69, 92-120	N=7 71, 72, 121-125	N=14 73, 126-138	**104**
Healthcare Team Acceptance of, and Satisfaction with, ACP Roles	N=24 3, 10-12, 18, 19, 21, 23-26, 28, 31, 42, 43, 74, 75, 79, 82, 85-88, 91	N=15 45, 53, 57, 92-94, 97, 98, 100-102, 108, 111, 113, 116	N=2 122, 125	N=4 73, 129, 135, 138	45
Healthcare Team Performance	N=25 3, 4, 8, 10-12, 15, 20, 21, 27, 31, 33-36, 40, 41, 74, 78, 81-84, 88, 89	N=22 44, 46, 52, 53, 57, 69, 92-95, 99, 101, 105-107, 109-111, 113-115, 118	N=7 71, 72, 121-125	N=4 131, 134, 136, 138	58
ACP Job Satisfaction and Perceived Support from Colleagues	N=10 19, 27, 28, 80, 85, 87, 89-91	N=7 66, 100-102, 104, 113, 117	N=3 122-124	N=11 73, 126-128, 132, 135, 137, 138	31
ACPs' Perception of Role Impact	N=0	N=7 45, 64, 107, 108, 117, 119, 120	N=0	N=6 126, 127, 130, 133, 135, 136	13
Quality of Care	N=18 20, 21, 29, 31, 32, 35, 40, 43, 88, 89, 139	N=26 44, 46, 53, 57, 66, 99, 100, 102, 107, 109, 111, 140-154	N=4 71, 72, 122, 125	N=3 73, 131, 134	**51**
Access to Care	N=13 4, 8, 10, 13, 15, 20, 21, 29, 31, 32, 40, 43, 139	N=7 46, 66, 99, 140, 148-150	N=3 71, 72, 125	N=2 73, 134	25
Patient Safety	N=6 11, 19, 21, 31, 35, 88	N=13 46, 57, 66, 141-147, 149, 151, 152	N=1 122	N=0	20

Outcome Domains	Primary Care No. of Papers & Refs	Secondary/Tertiary Care No. of Papers & Refs	Emergency & Pre-hospital Care No. of Papers & Refs	Other/Mixed No. of Papers & Refs	Total
Processes of Care	N=2 13, 89	N=12 53, 57, 66, 70, 99, 100, 102, 109, 111, 150, 153, 154	N=2 71, 122	N=2 131, 134	18
Healthcare Use & Costs	N=29 11-13, 16, 21, 29-43, 78, 81-84, 139, 155-157	N=64 44, 46-48, 50, 52, 54, 56, 57, 59, 61, 66-70, 93, 95, 96, 99, 104, 109, 110, 113, 115, 118, 140-143, 145, 147-154, 158-182	N=8 71, 72, 121-123, 125, 183, 184	N=3 73, 131, 134	**104**
Appropriateness of Care	N=26 11-13, 16, 29-38, 40-43, 81-83, 139, 155-157	N=55 44, 46-48, 50, 52, 54, 56, 59, 61, 66, 68, 70, 93, 95, 96, 99, 109, 110, 115, 118, 140-143, 145, 147-151, 153, 154, 158-169, 171-174, 177, 178, 180-182	N=7 71, 72, 121-123, 125, 184	N=3 73, 131, 134	91
Emergency Department Visits	N=1 83	N=0	N=1 183	N=0	2
Cost Savings & Revenue Generation	N=13 12, 29, 31, 32, 35, 38, 40, 41, 43, 83, 84, 139, 157	N=10 44, 57, 66, 69, 113, 141, 151, 152, 166, 172	N=0	N=0	23
Hospital Length of Stay & Readmission Rates	N=0	N=9 66, 67, 99, 151, 164, 170, 172, 175, 176	N=0	N=0	9
Organisation, Professional & Workforce Issues	N=1 185	N=3 102, 113, 119	N=0	N=1 135	**5**

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Supplementary File 11: Implementation Themes

Implementation Themes	Primary Care No. of Papers & Refs	Secondary/Tertiary Care No. of Papers & Refs	Emergency & Pre-hospital Care No. of Papers & Refs	Other/Mixed No. of Papers & Refs	Total
Role Implementation Issues	N=26 1-26	N=17 27-43	N=1 44	N=7 45-51	**51**
Autonomy *This theme relates to the extent of ACPs' autonomy, control, power, and influence over their roles as reported in the evidence. It captures how issues regarding existing organisational and professional power dynamics were reported to create barriers to ACPs' ability to independently and autonomously undertake and influence their roles and responsibilities, practice within the domains of the role, undertake initiatives and influence the direction of their roles and the services they provide. It highlights how these issues are reported in the literature to hinder ACP role and service development, implementation and long-term sustainability.*	N=14 1-5, 8, 9, 11, 13, 16, 18, 22, 24, 25	N=1 27	N=0	N=3 46, 50, 51	18
Rationale for ACP Roles & Services *This theme focuses on the extent to which policies and objectives underpinning ACP role introduction and development influences role sustainability. The papers provide evidence on the negative consequences of a lack of strategic planning regarding the introduction of ACP roles and services. They highlight how the introduction of ACP roles and services on an ad hoc basis within and across sectors may impede ACP role and service longevity.*	N=3 3, 11, 25	N=4 29-31, 33	N=0	N=0	7
Role Definition *This theme describes ambiguities in ACP role definition and the influence this has on the implementation of ACP roles and services. It summarises how the lack of standardisation and clarity of role description, the scope of practice, and role content and specificity act as barriers to role development and implementation.*	N=8 1, 3, 18, 20, 21, 23, 25, 26	N=3 29, 36, 39	N=0	N=3 45, 47, 48	11
Funding *This theme depicts the impact of funding availability and financial policies on ACP role and service implementation. The theme summarises evidence of the impact of a lack of funding to support ACP education, training and programmes on role development. It also provides a summary of the actual*	N=8 1, 3, 11, 14, 16, 18, 25, 26	N=1 42	N=0	N=3 47-49	12

Implementation Themes	Primary Care No. of Papers & Refs	Secondary/Tertiary Care No. of Papers & Refs	Emergency & Pre-hospital Care No. of Papers & Refs	Other/Mixed No. of Papers & Refs	Total
and potential influence of financial policies that seek to achieve cost savings and improvements on ACP role sustainability.					
Role Evaluation & Cross-Organisational Engagement *This theme describes how ongoing robust evaluation of ACP roles and services is linked to the acceptability, introduction, implementation and sustainability of ACP roles and services. It also highlights how inclusive communication and engagement among stakeholders within and across sectors are reported to be relevant to ACP role acceptability, implementation and sustainability.*	N=4 15, 18, 25, 26	N=1 39	N=0	N=0	5
Education, Support & Training *This theme describes the impacts of ACP education, training and continued professional development (CPD) on ACP role and service implementation from the perspectives of stakeholders as reported in the literature. It encompasses factors related to educational preparation, clinical supervision, mentorship, and CPD programmes and training. The theme also describes ways in which the educational, support and training gaps could be addressed to facilitate ACP role and service implementation.*	N=5 1, 15, 21, 25, 26	N=9 28, 31-35, 40, 41, 43	N=1 44	N=4 45, 47-49	19
Career Progression and Pathway *This theme describes the need for a clear career pathway and ongoing professional development framework to support ACP role sustainability.*	N=2 4, 25	N=0	N=0	N=1 47	3
Role Awareness *This implementation theme relates to stakeholders' familiarity with, and awareness of, the ACP role and how this influences role and service implementation. It summarises how stakeholders' limited knowledge of ACP education, training, competencies and scope of practice hinder role introduction, development, implementation and regulation from the perspectives of ACPs and service managers.*	N=0	N=6 27, 31, 33, 36, 37, 41	N=0	N=3 45, 47, 49	9

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Supplementary File 2: Information Sources Searched

Bibliographic Databases

1. Medline (Ovid MEDLINE and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions, 1946 to current (updated daily)) on 25 November 2019
2. CINAHL Plus® with Full Text (EBSCOhost, 1937 to 5 December 2019)
3. ASSIA (Applied Social Sciences Index & Abstracts, ProQuest, 1987 to 15 December 2019)
4. Embase (Ovid,1980 to 17 December 2019)
5. HMIC (Health Management Information Consortium, Ovid, 1979 to 6 January 2020)
6. AMED (Allied and Complementary Medicine, Ovid, 1985 onwards)
7. Amber (Ambulance Research, https://amber.openrepository.com/discover)
8. OTSeeker (Occupational Therapy Systematic Evaluation of Evidence, http://www.otseeker.com/ on 7 January 2020)
9. PsycINFO (Ovid, 1806 to 17 January 2020)
10. PEDro (Physiotherapy Evidence Database, https://www.pedro.org.au/, on 29 January 2020)
11. SportDiscus (EBSCOhost, 1800 to 30 January 2020)
12. Osteopathic Research http://www.osteopathicresearch.com/
13. Dietetics/Nutrition https://www.pennutrition.com/index.aspx

Grey Literature Sources

- ProQuest Dissertations & Theses A&I, 1743 to current
- Google scholar

Supplementary File 3: Medline Search Strategy

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions(R) 1946 to February 10, 2020

1	(((advanced adj2 practitioner*) or (advanced adj2 (practice* or practise*)) or "practitioner led" or "practice* led" or "practise* led") not nurs*).ti,ab,kw.
2	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or triag*) adj2 (prescrib* or prescrip*)) not nurs*).ti,ab,kw.
3	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj2 (practice* or practis* or practitioner* or provider* or professional* or specialist*)) not nurs*).ti,ab,kw.
4	1 or 2
5	exp Advanced Practice Nursing/ or exp Nurse Clinicians/ or exp Nurse Practitioners/
6	(nurs* adj2 (clinical or clinician* or practice* or practis* or practitioner*)).ti,ab,kw.
7	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (nurs* adj2 (clinical or clinician* or practice* or practis* or practitioner*))).mp.
8	5 or 6
9	(exp Nursing/ or exp Community Health Nursing/ or exp "Nurse's Role"/ or exp Nurses/ or exp Nursing Assistants/ or exp Licensed Practical Nurses/ or exp Nurse Specialists/) not (exp Advanced Practice Nursing/ or exp Nurse Clinicians/ or exp Nurse Practitioners/)
10	((nurs* adj2 (clinical or clinician* or scien* or technician* or technologist* or therap* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist)) or "nurse led" or "nursing led").ti,ab,kw.
11	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (nurs* adj2 (clinical or clinician* or scien* or technician* or technologist* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*))).mp.
12	9 or 10
13	exp Midwifery/ or exp Nurse Midwives/
14	(((midwife* or midwive*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist)) or "midwife led" or "midwives led" or "midwifery led").ti,ab,kw.
15	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 ((midwife* or midwive*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*))).mp.
16	13 or 14
17	exp Allied Health Personnel/ or exp Allied Health Occupations/
18	((allied adj health* adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist)) or AHP or AHPs or (lead adj2 AHP*) or "AHP led" or "AHPs led").ti,ab,kw.
19	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 ((allied adj health* adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or AHP or AHPs)).mp.
20	17 or 18
21	exp art therapy/ or dance therapy/ or exp music therapy/ or Sensory Art Therapies/ or exp Psychodrama/
22	exp Psychotherapy/ or exp Mental Health Services/ or exp Psychoanalysis/
23	((((sensory* or (art not (HIV or antiretroviral* or retroviral*)) or arts or danc* or drama* or music*) adj2 (psychotherap* or psycho-therap* or therap* or psycholog*)) or dramatherap* or psychodrama or psycho-drama) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)).ti,ab,kw.
24	(((psychotherap* or psycho-therap* or psychoanaly* or psycho-analy* or psychodynam* or psycho-dynam* or hypnopsychotherap* or hypno-psychotherap* or hypnotherap* or (talking* adj2 therap*)) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or "psychotherapist* led" or "psychotherapy led" or "psychoanalyst* led" or "psychoanalysis led").ti,ab,kw.
25	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 ((((sensory* or (art not (HIV or antiretroviral* or retroviral)) or arts or danc* or drama* or music*) adj2

	(psychotherap* or psycho-therap* or therap* or psycholog*)) or dramatherap* or psychodrama or psycho-drama) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*))).mp.
26	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (((psychotherap* or psycho-therap* or psychoanaly* or psycho-analy* or psychodynam* or psycho-dynam* or hypnopsychotherap* or hypno-psychotherap* or hypnotherap* or (talking* adj2 therap*)) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or "psychotherapist* led" or "psychotherapy led" or "psychoanalyst* led" or "psychoanalysis led")).mp.
27	21 or 22 or 23 or 24
28	exp Podiatry/
29	(((chiropod* or podiatr* or pedorth* or foot or feet or ankle* or toe* or heel*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or chiropodist* or podiatrist* or "podiatry led" or "chiropody led").ti,ab,kw.
30	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (chiropod* or podiatr* or pedorth* or foot or feet or ankle* or toe* or heel*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or chiropodist* or podiatrist* or "podiatry led" or "chiropody led").mp.
31	28 or 29
32	exp Nutritionists/ or exp Nutritional Sciences/
33	(((dietit* or dietet* or dietic* or nutrition*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or dietitian* or dietician* or nutritionist* or "diet* led" or "nutrit* led").ti,ab,kw.
34	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (dietit* or dietet* or nutrition*) adj2 (clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional*)) or "diet* led" or "nutrit* led").mp.
35	32 or 33
36	exp Occupational Therapists/ or exp Occupational Therapy/
37	(((OT or occupational*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or "occupational therap* led" or "OT led").ti,ab,kw.
38	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (OT or occupational*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or "occupational therap* led" or "OT led").mp.
39	36 or 37
40	exp Perioperative Nursing/ or exp Operating Room Technicians/
41	(ODP or ODPs or ORT or ORTs or ((perioperat* or peri-operat* or operat*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or ODP-led or ORT-led).ti,ab,kw.
42	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (ODP or ODPs or ORT or ORTs or ((perioperat* or peri-operat* or operat*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or manpower* or provider* or professional* or specialist*)))) or ODP-led or ORT-led).mp.
43	40 or 41
44	exp Orthoptics/ or exp Optometrists/ or exp Optometry/ or exp Ophthalmologists/ or exp Ophthalmology/
45	(orthopti* or pleoptic* or optomet* or ophthalm* or ((intraocular* or intra-ocular* or ocular* or eye* or retina* or optic* or cornea* or cataract* or iris* or blind* or conjunctiva* or cornea* or lacrima* or lens* or orbit* or pupil* or sclera* or sight or uvea* or vision) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist* or (special adj (need* or education*)))) or orthoptist* or optometrist* or ophthalmologist* or

	"orthoptist* led" or "orthoptic* led").ti,ab,kw.
46	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 ((orthopti* or pleoptic* or optomet* or ophthalm* or (intraocular* or intra-ocular* or ocular* or eye* or retina* or optic* or cornea* or cataract* or iris* or blind* or conjunctiva* or cornea* or lacrima* or lens* or orbit* or pupil* or sclera* or sight or uvea* or vision)) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or manpower* or provider* or professional* or specialist* or (special adj (need* or education*))))) or orthoptist* or optometrist* or ophthalmologist* or "orthoptist* led" or "orthoptic* led").mp.
47	44 or 45
48	exp Osteopathic Physicians/ or exp Osteopathic Medicine/
49	(((osteopath* or osteo-path*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or osteopath or osteopaths or "osteopath* led").ti,ab,kw.
50	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (osteopath* or osteo-path*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or osteopath or osteopaths or "osteopath* led").mp.
51	48 or 49
52	exp "Prostheses and Implants"/ and (exp "Referral and Consultation"/ or exp Triage/ or exp Professional Role/ or exp Professional Competence/ or exp "Attitude of Health Personnel"/ or exp Credentialing/)
53	(((prosthes* or prosthet* or orthoti*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or prosthetist* or orthotist* or "prosthet* led" or "orthot* led").ti,ab,kw.
54	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (prosthes* or prosthet* or orthoti*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or prosthetist* or orthotist* or "prosthet* led" or "orthot* led").mp.
55	(exp Emergency Medical Services/ or Ambulances/ or Air Ambulances/) and (exp "Referral and Consultation"/ or exp Triage/ or exp Professional Role/ or exp Professional Competence/ or exp "Attitude of Health Personnel"/ or exp Credentialing/)
56	exp Emergency Medical Technicians/
57	(((paramedic* or para-medic* or ambulance* or urgen* or critical* or immediate* or emergenc* or pre-hospital* or pre-hospital* or EMS or EMT or HEMT or "first-respon*") adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or paramedic or paramedics or "paramedic* led").ti,ab,kw.
58	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (paramedic* or para-medic* or ambulance* or urgen* or critical* or immediate* or emergenc* or pre-hospital* or pre-hospital* or EMS or EMT or HEMT or "first-respon*") adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or paramedic or paramedics or "paramedic* led").mp.
59	56 or 57
60	exp Physical Therapists/ or exp Physical Therapist Assistants/ or exp Physical Therapy Specialty/ or exp Physical Therapy Modalities/
61	(((physio-therap* or physiotherap* or physio or physios or pathophysiol* or ((physical* adj therap*) or musculoskeletal* or MSK)) adj2 (clinical* or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or physiotherapist* or (physical adj therapist*) or "physio* led" or "physical therap* led").ti,ab,kw.
62	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (physio-therap* or physiotherap* or physio or physios or pathophysiol* or (physical* adj therap*) or musculoskeletal* or MSK) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or "physio* led" or "physical therap* led").mp.
63	60 or 61

64	exp Radiography/ or exp Radiotherapy/ or exp Technology, Radiologic/ or exp Radiometry/ or exp Radiotherapy Dosage/ or exp Radiation Oncology/ or exp Radiotherapy, Intensity-Modulated/ or exp Radionuclide Imaging/ or exp Radiopharmaceuticals/
65	exp Brachytherapy/ or exp Mammography/ or exp Radiographic Image Interpretation, Computer-Assisted/ or exp Radiotherapy Planning, Computer-Assisted/ or exp Nuclear Medicine/ or exp Ultrasonography/ or exp Fluoroscopy/ or exp biopsy, needle/ or exp image-guided biopsy/ or exp sentinel lymph node biopsy/
66	(64 or 65) and (exp "Referral and Consultation"/ or exp Triage/ or exp Professional Role/ or exp Professional Competence/ or exp "Attitude of Health Personnel"/ or exp Credentialing/)
67	(((radiograph* or radiologic* or radiotherap* or (diagnos* adj2 imag*) or radiation) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or prescriber* or specialist*)) or radiographer* or radiologist* or radiotherapist* or "radiograph* led" or "radiolog* led" or "radiotherap* led" or neuro-radiologi*).ti,ab,kw.
68	(((mammograph* or mammogram* or brachytherap* or dosimetr* or sonograph* or ultrasonograph* or ultrasound* or videofluoroscop* or videofluorograph* or VFS or VFG or fluoroscop* or fluorograph*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or prescriber* or specialist*)) or mammographer* or brachytherapist* or dosimetrist* or sonographer* or ultrasonographer* or "mammograph* led" or "brachytherap* led" or "sonograph* led" or "ultrasonograph* led").ti,ab,kw.
69	(((nuclear adj (medic* or radiolog*)) or "atomic medic*" or ((radioisotop* or radionucleotid*) adj2 (therap* or diagnos* or imaging)) or radiopharmaceut* or (radiotherap* adj2 (dosage* or planning)) or (radiograph* adj imag*) or "radiation therap*" or biopsy or biopsies or aspiration) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or prescriber* or specialist*)).ti,ab,kw.
70	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 ((radiograph* or radiologic* or radiotherap* or (diagnos* adj2 imag*) or radiation) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or specialist*))) or ((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj2 (radiographer* or radiologist* or radiotherapist*)) or "radiograph* led" or "radiolog* led" or "radiotherap* led" or neuro-radiologi*).mp.
71	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 ((mammograph* or mammogram* or brachytherap* or dosimetr* or sonograph* or ultrasonograph* or ultrasound*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or specialist*))) or ((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj2 (mammographer* or brachytherapist* or dosimetrist* or sonographer* or ultrasonographer*)) or "mammograph* led" or "brachytherap* led" or "sonograph* led" or "ultrasonograph* led").mp.
72	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (((nuclear adj (medic* or radiolog*)) or "atomic medic*" or ((radioisotop* or radionucleotid*) adj2 (therap* or diagnos* or imaging)) or radiopharmaceut* or (radiotherap* adj2 (dosage* or planning)) or (radiograph* adj imag*) or "radiation therap*" or biopsy or biopsies or aspiration) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or specialist*))).mp.
73	67 or 68 or 69
74	exp Speech Therapy/ or exp Language Therapy/ or exp Speech-Language Pathology/
75	(((speech* or language*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or patholog* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or prescriber* or specialist*)) or ((SLT or SLTs or SLP or SLPs) not ("selective laser trabec*" or "structured light plethy*")) or ((speech* or language*) adj2 (therapist* or pathologist*)) or "SLT* led" or "SLP* led").ti,ab,kw.
76	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 ((speech* or language*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or patholog* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or specialist*))) or ((speech* or language*) adj2 (therapist* or pathologist*)) or ((SLT or SLTs or SLP or SLPs) not ("selective laser trabec*" or "structured light plethy*")) or "SLT* led" or "SLP* led").mp.

77	((((speech* or language*) adj2 (therapist* or pathologist*)) or (SLT or SLTs or SLP or SLPs)) adj2 (ENT or (ear adj2 nose adj2 throat) or ((laryng* or nas*) adj2 endoscop*) or swallow* or dysphag* or tracheostom*)).mp.
78	exp Fluoroscopy/
79	(videofluoroscop* or videofluorograph* or VFS or VFG or fluoroscop* or fluorograph* or ((cine or photo) adj2 (radiograph* or fluorograph*))).mp.
80	74 or 75
81	78 or 79
82	exp Audiology/ or exp Otolaryngology/
83	(hearing* adj2 (dispens* or provid* or provis*)).ti,ab,kw.
84	((hear or hears or hearing or ear or ears or deaf* or cochlear* or tinnit*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)).ti,ab,kw.
85	(((audiolog* or audiometr* or ENT or (ear adj nose adj throat) or otolaryng* or otorhinolaryng* or otolog* or audiovestibular* or labyrinth* or vestibular*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or audiologist* or audiometrist* or "audiolog* led" or "audiometr* led").ti,ab,kw.
86	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (audiolog* or audiometr* or ENT or (ear adj nose adj throat) or hear or hears or hearing or ear or ears or deaf* or cochlear* or tinnit* or otolaryng* or otorhinolaryng* or otolog* or audiovestibular* or labyrinth* or vestibular*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or audiologist* or audiometrist* or "audiolog* led" or "audiometr* led").mp.
87	82 or 83 or 84 or 85
88	exp Medical Laboratory Science/ or exp Medical Laboratory Personnel/
89	(((clinical* or biomed* or medical* or healthcare* or health care*) adj2 (scien* or technician* or technologist* or professional* or prescriber* or specialist*)) not (nurs* or therap* or patholog* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower*)).ti,ab,kw.
90	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (clinical* or biomed* or medical* or healthcare* or health care*) adj2 (nurs* or scien* or technician* or technologist* or therap* or patholog* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or specialist*)).mp.
91	88 or 89
92	exp Psychology/
93	(((psycholog* or "high intensity" or "high-intensity") adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or prescriber* or specialist*)) or psychologist* or PWP or PWPs or "psycholog* led").ti,ab,kw.
94	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (psycholog* or "high intensity" or "high-intensity") adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or specialist)) or psychologist* or PWP or PWPs or "psycholog* led").mp.
95	92 or 93
96	exp Pharmacy/ or exp Community Pharmacy Services/ or exp Pharmacy Technicians/ or exp Pharmaceutical Services/
97	(((pharmacy or pharmacies or pharmacist*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or APPP or APPPs or CPP or CPPs or "pharmacy led" or "pharmacist* led" or "pharmacy provided" or "pharmacist* provided" or "pharmacy delivered" or "pharmacist* delivered").ti,ab,kw.
98	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (pharmacy or pharmacies or pharmacist*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or APPP or APPPs or CPP or CPPs or "pharmacy led" or "pharmacist* led" or "pharmacy provided" or "pharmacist* provided" or "pharmacy delivered" or "pharmacist* delivered").mp.
99	exp Drug Utilization/ or exp Antimicrobial Stewardship/ or exp Medication Therapy Management/ or

	Polypharmacy/
100	((pharmaceutic* or medication* or medicin* or polypharmac* or antimicrob* or antibiotic* or formular* or formulation*) adj2 (prescriber* or steward* or manag*)).ti,ab,kw.
101	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag* or manag* or steward*) adj3 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional* or prescriber* or specialist*)).ti,ab,kw.
102	96 or 97 or 100
103	98 or (99 and 101)
104	exp General Practice, Dental/ or exp Dental Facilities/ or exp Dental Health Services/ or exp Community Dentistry/ or exp Technology, Dental/
105	exp Dental Auxiliaries/ or Dental Staff/ or exp Dentists/ or exp Dentistry/ or exp Oral Health/ or exp Oral Hygiene/ or exp Dental Assistants/
106	104 or 105
107	((dental* or dentist* or dentit* or oral*) adj2 (assist* or associat* or auxiliar* or hygien*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)).ti,ab,kw.
108	(((dental* or dentist* or dentit*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)) or endontist* or orthodontist* or "dentist* led" or "orthodont* led").ti,ab,kw.
109	((((dental* or dentist* or dentit*) adj2 (service* or clinic* or centre* or center* or program* or facilit* or unit*)) or "dental care" or "dental healthcare" or "dental health care") adj2 (nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or prescriber* or specialist*)).ti,ab,kw.
110	(((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 (dental* or dentist* or dentit* or oral* or endont* or orthodont*) adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or professional* or specialist*)) or endotist* or orthodontist* or "dentist* led" or "orthodont* led").mp.
111	107 or 108 or 109
112	106 or 111
113	exp Social Workers/ or exp Social Work/
114	(social* adj work* adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or provider* or manpower* or professional* or prescriber*)).ti,ab,kw.
115	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj3 social* adj2 (clinical or clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or personnel* or occupation* or worker* or workforce* or provider* or manpower* or professional*)).mp.
116	113 or 114
117	(local adj (authorit* or government* or council*)).mp.
118	exp Local Government/
119	117 or 118
120	exp State Medicine/ or exp Social Welfare/ or exp Mental Health Services/ or exp Community Mental Health Services/ or exp Public Health/
121	exp Child Welfare/ or exp Child Health Services/ or exp Foster Home Care/ or exp Adolescent Health Services/ or exp Transition to Adult Care/
122	exp "Continuity of Patient Care"/ or exp Home Care Services/ or exp Nursing Homes/ or exp Residential Facilities/ or exp Homes for the Aged/ or exp Respite Care/
123	120 or 121 or 122
124	((advanced adj2 practitioner*) or (advanced adj2 (practice* or practise*))).ti,ab,kw.
125	((advanc* or exten* or expand* or enhanc* or consult* or refer* or triag*) adj2 (prescrib* or prescrip*)).ti,ab,kw.
126	((advanc* or exten* or expand* or enhanc* or consult* or refer* or prescrib* or prescrip* or triag*) adj2 (practice* or practis* or practitioner* or provider* or professional* or specialist*)).ti,ab,kw.
127	(119 or 123) and (124 or 125 or 126)
128	exp Criminology/ or exp Domestic Violence/ or exp Criminals/ or exp Prisoners/ or exp Prisons/ or exp Jurisprudence/ or exp Emergency Responders/ or exp Police/
129	exp forensic sciences/ or exp forensic dentistry/ or exp forensic medicine/ or exp forensic nursing/ or exp

	forensic psychology/ or exp forensic toxicology/ or exp forensic psychiatry/ or exp forensic radiography/
130	128 or 129
131	(safeguard* or warden* or warder* or guard* or custodian* or custody* or prison* or probation* or police* or forensic* or law* or unlawful* or legal* or illegal* or legislat* or juris* or judic* or prosecut* or criminal* or offender* or suspect* or jail* or gaol*).mp.
132	(130 or 131) and (124 or 125 or 126)
133	exp Private Sector/
134	exp Public-Private Sector Partnerships/
135	exp Preferred Provider Organizations/
136	((private* or independent* or outsourc* or out-sourc* or "public-private" or "non-government*" or NGO* or CCG) adj3 (commission* or sector* or partner* or provid* or provis* or compan* or organisation* or organization* or enterpris* or consorti* or franchis* or contract* or partner*)).mp.
137	133 or 134 or 135 or 136
138	exp Volunteers/
139	exp charities/ or exp faith-based organizations/ or exp organizations, nonprofit/ or exp self-help groups/
140	(((charit* or nonprofit* or "non-profit*" or volunt* or "3rd sector" or "third sector") adj3 (commission* or sector* or partner* or provid* or provis* or compan* or organisation* or organization* or enterpris* or consorti* or franchis* or contract* or partner*)) or "social enterprise*").mp.
141	138 or 139 or 140
142	(137 or 141) and (124 or 125 or 126)
143	exp "Referral and Consultation"/ or exp Triage/
144	exp Professional Role/ or exp Professional Competence/ or exp "Attitude of Health Personnel"/ or exp Credentialing/
145	((autonom* or unsupervised or non-supervis* or "not under supervision" or independen* or responsib* or qualif* or professional* or licenced or licensed or licensure* or certif* or accredit* or credential* or registered or registrat* or authorit* or authorised or authorized) adj2 (clinician* or nurs* or scien* or technician* or technologist* or therap* or practice* or practis* or practitioner* or prescriber* or occupation* or personnel* or worker* or workforce* or manpower* or provider* or specialist*)).ti,ab,kw.
146	(Extended scope or "Hybrid practitioner*" or Multipract* or Multi-pract* or Multidisciplin* or Multi-disciplin* or Multiprofession* or Multi-profession* or Multispecial* or Multi-special* or Multiagenc* or Multi-agenc* or Multiinstitut* or Multi-institut* or Interpract* or Inter-pract* or Interdisciplin* or Inter-disciplin* or Interprofession* Inter-profession* or Interspecial* or Inter-special* or Interdepend* or Inter-depend* or Interagenc* or Inter-agenc* or Interinstitut* or Inter-institut* or Metapract* or Meta-pract* or Metaprofession* or Meta-profession* or Metadisciplin* or Meta-disciplin* or Metaspecial* or Meta-special* or Meta-agenc* or Meta-institut* or Transpract* or Trans-pract* or Transprofession* or Trans-profession* or Transdisciplin* or Trans-disciplin* or Transspecial* or Trans-special* or Transagenc* or Trans-agenc* or Transinstitut* or Trans-institut* or crosspract* or cross-pract* or crossdisciplin* or cross-disciplin* or crossprofession* or cross-profession* or crossspecial* or cross-special* or crossdepend* or cross-depend* or crossagenc* or cross-agenc* or crossinstitut* or cross-institut*).ti,ab,kw.
147	exp Interprofessional Relations/ or exp Interdisciplinary Communication/ or exp Interinstitutional Relations/
148	(non-physician* or non-special* or non-clinic* or non-medical* or ((first or 1st) adj2 contact) or FCP or frontline* or front-line* or urgent* or emergenc* or A&E or unscheduled* or ambulator* or outpatient*).ti,ab,kw.
149	143 or 144 or 145 or 146 or 147 or 148
150	142 and 149
151	exp United Kingdom/
152	(national health service* or nhs*).ti,ab,in,kw.
153	(english not ((published or publication* or translat* or written or language* or speak* or literature or citation*) adj5 english)).ti,ab.
154	(gb or "g.b." or britain* or (british* not "british columbia") or uk or "u.k" or united kingdom* or (england* not "new england") or scotland* or scottish* or ((wales or "south wales") not "new south wales") or welsh*).ti,ab,jw,in,kw.
155	((northern ireland* or northern irish*) not ((ireland* or irish*) not (gb or "g.b." or britain* or british* or uk or "u.k." or united kingdom* or england* or scotland* or scottish* or wales* or welsh*))).ti,ab,jw,in,kw.
156	(exp africa/ or exp americas/ or exp antarctic regions/ or exp arctic regions/ or exp asia/ or exp oceania/) not (exp united kingdom/ or exp europe/)
157	151 or 152 or 153 or 154 or 155
158	157 not 156

159	150 and 158
160	limit 159 to yr="2005 - 2020"
161	(case reports or comment or editorial or letter or news).pt.
162	160 not 161
163	3 and 149
164	4 or 163
165	158 and 164
166	limit 165 to yr="2005 - 2020"
167	166 not 161
168	8 and 149
169	7 or 168
170	158 and 169
171	limit 170 to yr="2005 - 2020"
172	171 not 161
173	12 and 149
174	11 or 173
175	158 and 174
176	limit 175 to yr="2005 - 2020"
177	176 not 161
178	12 and 149
179	11 or 178
180	158 and 179
181	limit 180 to yr="2005 - 2020"
182	181 not 161
183	16 and 149
184	15 or 183
185	158 and 184
186	limit 185 to yr="2005 - 2020"
187	186 not 161
188	20 and 149
189	19 or 188
190	158 and 189
191	limit 190 to yr="2005 - 2020"
192	191 not 161
193	27 and 149
194	25 or 26 or 193
195	158 and 194
196	limit 195 to yr="2005 - 2020"
197	196 not 161
198	31 and 149
199	30 or 198
200	158 and 199
201	limit 200 to yr="2005 - 2020"
202	201 not 161
203	35 and 149
204	34 or 203
205	158 and 204
206	limit 205 to yr="2005 - 2020"
207	206 not 161
208	39 and 149
209	38 or 208
210	158 and 209
211	limit 210 to yr="2005 - 2020"
212	211 not 161
213	43 and 149
214	42 or 213
215	158 and 214
216	limit 215 to yr="2005 - 2020"
217	216 not 161
218	47 and 149

219	46 or 218
220	158 and 219
221	limit 220 to yr="2005 - 2020"
222	221 not 161
223	51 and 149
224	50 or 223
225	158 and 224
226	limit 225 to yr="2005 - 2020"
227	226 not 161
228	(52 or 53) and 149
229	54 or 228
230	158 and 229
231	limit 230 to yr="2005 - 2020"
232	231 not 161
233	59 and 149
234	55 or 58 or 233
235	158 and 234
236	limit 235 to yr="2005 - 2020"
237	236 not 161
238	63 and 149
239	62 or 238
240	158 and 239
241	limit 240 to yr="2005 - 2020"
242	241 not 161
243	73 and 149
244	66 or 70 or 71 or 72 or 243
245	244 and 158
246	limit 245 to yr="2005 - 2020"
247	246 not 161
248	80 and (81 or 149)
249	76 or 77 or 248
250	249 and 158
251	limit 250 to yr="2005 - 2020"
252	251 not 161
253	87 and 149
254	86 or 253
255	254 and 158
256	limit 255 to yr="2005 - 2020"
257	256 not 161
258	91 and 149
259	90 or 258
260	259 and 158
261	limit 260 to yr="2005 - 2020"
262	261 not 161
263	95 and 149
264	94 or 263
265	264 and 158
266	limit 265 to yr="2005 - 2020"
267	266 not 161
268	102 and 149
269	103 or 268
270	269 and 158
271	limit 270 to yr="2005 - 2020"
272	271 not 161
273	112 and 149
274	110 or 273
275	274 and 158
276	limit 275 to yr="2005 - 2020"
277	276 not 161
278	116 and 149

279	115 or 278
280	279 and 158
281	limit 280 to yr="2005 - 2020"
282	281 not 161
283	127 and 149
284	283 and 158
285	limit 284 to yr="2005 - 2020"
286	285 not 161
287	132 and 149
288	287 and 158
289	limit 288 to yr="2005 - 2020"
290	289 not 161
291	162 or 167 or 172 or 177 or 187 or 192 or 197 or 202 or 207 or 212 or 217 or 222 or 227 or 232 or 237 or 242 or 247 or 252 or 257 or 262 or 267 or 272 or 277 or 282 or 286 or 290

Supplementary File 4: Excluded Studies Table

Summary Table

Rationale for Exclusion	No. of Papers Excluded
Abstract or other output of findings of an included paper	9
Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)	76
Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)	247
Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)	13
Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational or training activities, reports views of a potential new service rather than an actual established service, otherwise not relevant)	40
Not UK	22
Published before 2005	1
TOTAL	**408**

Full Table

Author	Rationale for Exclusion
Abbott, S., J. Burns, A. Gleadell, and C. Gunnell. 2007. 'Community nurses and self-management of blood glucose', *British Journal of Community Nursing*, 12: 6-11.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Abbott, S. 2007. 'Leadership across boundaries: a qualitative study of the nurse consultant role in English primary care', *Journal of Nursing Management*, 15: 703-10.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Abraham, Jenny, Becky Whiteman, Jane Coad, and Rosie Kneafsey. 2016. 'Development and implementation of non-medical practitioners in acute care', *British journal of nursing (Mark Allen Publishing)*, 25: 1129-34.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Abuzour, Aseel S., Penny J. Lewis, and Mary P. Tully. 2018. 'Factors influencing secondary care pharmacist and nurse independent prescribers' clinical reasoning: An interprofessional analysis', *Journal of Interprofessional Care*, 32: 160-68.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Abuzour, Aseel S., Penny J. Lewis, and Mary P. Tully. 2018. 'A qualitative study exploring how pharmacist and nurse independent prescribers make clinical decisions', *Journal of Advanced Nursing*, 74: 65-74.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Alfakih, K., M. Melville, J. Nainby, J. Waterall, K. Walters, J. Walsh, and A. Harcombe. 2009. 'Nurse specialist-led management of acute	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no

Author	Rationale for Exclusion
coronary syndromes', *British Journal of Cardiology*, 16: 132-34.	clear definition or description given so unable to assess)
Allcock, Debi. 2009. 'Using a community respiratory service to reduce children's hospital admissions', *Nursing Times*, 105: 22-23.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Al-Maqbali, Mohammed Abdullah. 2013. 'Glioblastoma multiforme in adults and the role of the advanced nurse practitioner', *British Journal of Neuroscience Nursing*, 9: 179-86.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Aly, Mariyam, Victoria Garcia-Cardenas, Kylie A. Williams, and Shalom I. Benrimoj. 2019. 'A qualitative study of stakeholder views and experiences of minor ailment services in the United Kingdom', *Research in social & administrative pharmacy : RSAP*, 15: 496-504.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Anderson, Claire. 2018. 'Exploring the role of advanced nurse practitioners in leadership', *Nursing standard (Royal College of Nursing (Great Britain) : 1987)*, 33: 29-33.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Aplin, Neal. 2017. 'Advanced nurse practitioner-led abdominal therapeutic paracentesis', *Emergency nurse : the journal of the RCN Accident and Emergency Nursing Association*, 24: 34-37.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Avery, Pearl. 2018. 'Advance practice nursing in inflammatory bowel disease', *Gastrointestinal Nursing*, 16: 16-23.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Bagley, Sue. 2018. 'Exploring emergency nurse practitioners' perceptions of their role', *Nursing standard (Royal College of Nursing (Great Britain) : 1987)*, 32: 41-50.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Baker, H., R. A. Harper, D. F. Edgar, and J. G. Lawrenson. 2016. 'Multi-stakeholder perspectives of locally commissioned enhanced optometric services', *BMJ Open*, 6: e011934.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Ball, Stephen T. E., Kate Walton, and Stephen Hawes. 2007. 'Do emergency department physiotherapy practitioner's, emergency nurse practitioners and doctors investigate, treat and refer patients with closed musculoskeletal injuries differently?', *Emergency medicine journal : EMJ*, 24: 185-8.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Banner, T., and D. John. 2016. 'Pilot study of interventions by independent prescriber (IP) pharmacist in an emergency unit (EU)', *International Journal of Pharmacy Practice*, 24: 33-34.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Baqir, W., O. Crehan, R. Murray, R. Copeland, and D. Campbell. 2013. 'An evaluation of pharmacist prescribing in a hospital setting', *International Journal of Pharmacy Practice*, 21: 56-57.	Abstract or other output reporting on the same paper (see below)

Author	Rationale for Exclusion
Baqir, Wasim, Olga Crehan, Richard Murray, David Campbell, and Richard Copeland. 2015. 'Pharmacist prescribing within a UK NHS hospital trust: nature and extent of prescribing, and prevalence of errors', *European Journal of Hospital Pharmacy: Science & Practice*, 22: 79-82.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Barnes, H. 2010. 'Midwife led antenatal care for women with a previous caesarean section', *MIDIRS Midwifery Digest*, 20: 41-45.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Barnwell, Abby. 2015. 'Advanced nursing practice in colorectal and stoma care', *Gastrointestinal Nursing*, 13: 42-48.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Barratt, J. 2018. 'Collaborative communication: learning from advanced clinical practice patient consultations', *Nursing standard (Royal College of Nursing (Great Britain) : 1987)*, 33: 27-32.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Barton, C., J. Merrilees, R. Ketelle, S. Wilkins, and B. Miller. 2014. 'Implementation of advanced practice nurse clinic for management of behavioral symptoms in dementia: a dyadic intervention (innovative practice)', *Dementia (London, England)*, 13: 686-96.	Not UK
Basu, Shimona, and Jonathan Garside. 2012. 'Review of a nurse practitioner led short stay unit', *British Journal of Healthcare Management*, 18: 549-53.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Basu, S., and J. Garside. 2012. 'Nurse practitioner led short stay assessment units: An alternative model of care?', *Archives of Disease in Childhood*, 97: A105.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Behi, Ruhi. 2006. 'Advanced nursing practice in cancer', *British journal of nursing (Mark Allen Publishing)*, 15: 354.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Bethel, Jim. 2005. 'The role of the physiotherapist practitioner in emergency departments: a critical appraisal', *Emergency nurse : the journal of the RCN Accident and Emergency Nursing Association*, 13: 26-31.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Bhattacharyya, M., H. Bradley, A. Teherani, and B. Gerber. 2005. 'Nurse practitioner's knee injection clinics in the UK: the patient's perception', *Journal of Orthopaedic Nursing*, 9: 134-39.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Birchall, Dolina, A. Mobeen Ismail, and George Peat. 2008. 'Clinical outcomes from a physiotherapist-led intra-articular hyaluronic acid injection clinic', *Musculoskeletal Care*, 6: 135-49.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Bishop, Annette, Reuben O. Ogollah, Sue Jowett, Jesse Kigozi, Stephanie Tooth, Joanne Protheroe, Elaine M. Hay, Chris Salisbury, Nadine E. Foster, and Stems study team. 2017. 'STEMS pilot trial: a pilot cluster randomised controlled trial to investigate the addition of patient direct access to physiotherapy to usual GP-led primary care for adults with musculoskeletal pain', *BMJ Open*, 7: e012987.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Bissmire, S. D. 2010. 'Nurse-led abdominal paracentesis service', *Gut*, 59: A101-A02.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Black, Adam, and Mary Dawood. 2014. 'A comparison in independent nurse prescribing and patient group directions by nurse practitioners in the emergency department: a cross sectional review', *International Emergency Nursing*, 22: 10-7.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Black, Adam. 2013. 'Non-medical prescribing by nurse practitioners in accident & emergency and sexual health: a comparative study', *Journal of Advanced Nursing*, 69: 535-45.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Black, A., C. Roberts, and A. Smith. 2012. 'Non-medical prescribing by nurse practitioners in a walk-in sexual health clinic', *Sexually Transmitted Infections*, 88.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Booth, T. C., D. Edwards, A. D. Platts, and L. E. Savy. 2011. 'Assessment of radiographer CT-guided dorsal ganglion block', *Radiography*, 17: 241-44.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Boulanger, C., J. Platts, S. Simpson, and S. Wallace. 2016. 'The advanced critical care practitioner role: A workforce solution for ICU? From small acorns', *Journal of the Intensive Care Society*, 17: 97.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Bourne, Richard S., Paul Whiting, Lisa S. Brown, and Mark Borthwick. 2016. 'Pharmacist independent prescribing in critical care: results of a national questionnaire to establish the 2014 UK position', *The International journal of pharmacy practice*, 24: 104-13.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Bowen, Annette Brett. 2019. 'How do emergency nurse practitioners experience managing acutely unwell patients in minor injury units? An Interpretative Phenomenological Analysis', *International Emergency Nursing*, 43: 99.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Bowes, O. M. B., P. Shah, M. Rana, S. Farrell, and M. S. Rajan. 2018. 'Quality indicators in a community optometrist led cataract shared care scheme', *Ophthalmic & physiological optics : the journal of the British College of*	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Ophthalmic Opticians (Optometrists), 38: 183-92.	
Bowler, M. 2009. 'Exploring patients' experiences of a community matron service using storybooks', *Nursing Times*, 105: 19-21.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Bowling, B., S. D. M. Chen, and J. F. Salmon. 2005. 'Outcomes of referrals by community optometrists to a hospital glaucoma service', *The British journal of ophthalmology*, 89: 1102-4.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Bowskill, Dianne, Stephen Timmons, and Veronica James. 2013. 'How do nurse prescribers integrate prescribing in practice: case studies in primary and secondary care', *Journal of Clinical Nursing*, 22: 2077-86.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Boyd, M. J., C. Mann, C. Anderson, A. J. Avery, and J. Waring. 2019. 'Evaluation of the NHS England Phase 1 pilot: Clinical pharmacists in general practice', *International Journal of Pharmacy Practice*, 27: 4-5.	Abstract or other output reporting on the same findings as an included paper
Boyle, G., M. Cain, and L. Hughes. 2012. 'Implementing new roles: Radiographer led on treatment review - Delivery of a medical model by non medical staff', *Radiotherapy and Oncology*, 103: S617.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Bradley, E., and P. Nolan. 2007. 'Impact of nurse prescribing: a qualitative study', *Journal of Advanced Nursing (Wiley-Blackwell)*, 59: 120-28.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Bradley, E., P. Wain, and P. Nolan. 2008. 'Putting mental health nurse prescribing into practice', *Nurse Prescribing*, 6: 15-19.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Bradshaw, K. 2010. 'The role of the advanced practitioner in the successful implementation and delivery of imageguided brachytherapy', *Journal of Radiotherapy in Practice*, 9: 186-87.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Briggs, Michelle, S. Jose Closs, Kath Marczewski, and Joanne Barratt. 2008. 'A feasibility study of a combined nurse/pharmacist-led chronic pain clinic in primary care', *Quality in Primary Care*, 16: 91-4.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Brodie, Liz, Jayne Donaldson, and Susan Watt. 2014. 'Non-medical prescribers and benzodiazepines: A qualitative study', *Nurse Prescribing*, 12: 353-59.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Brooke, Mike, Julie Walton, Diane Scutt, Jim Connolly, and Bob Jarman. 2012. 'Acquisition and interpretation of focused diagnostic ultrasound images by ultrasound-naive advanced paramedics: trialling a PHUS	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)

Author	Rationale for Exclusion
education programme', *Emergency medicine journal : EMJ*, 29: 322-6.	
Brookes, D. 2008. 'An evaluation of community matron prescribing', *Nurse Prescribing*, 6: 67-70.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Brooks, Christina. 2013. 'Developing health visitor prescribing', *Community practitioner: the journal of the Community Practitioners' & Health Visitors' Association*, 86: 28-30.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Bruhn, H., M. Watson, A. Blyth, and C. M. Bond. 2010. 'Pharmacist-led management of chronic pain in primary care: Patient expectations, attitudes and concerns', *International Journal of Pharmacy Practice*, 18: 23-24.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Bryson, Clare. 2016. 'How emergency department staff perceive acute nurse practitioners', *Emergency nurse : the journal of the RCN Accident and Emergency Nursing Association*, 23: 26-31.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Buckley, P., J. Grime, and A. Blenkinsopp. 2008. 'Factors enabling or inhibiting the implementation of pharmacist prescribing in secondary care', *International Journal of Pharmacy Practice*, 16: A7-A8.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Burns, S. 2009. 'Trialling the role of advanced practitioner occupational therapist in acute stroke - Does it make a difference?', *International Journal of Stroke*, 4: 22.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Burns, John. 2018. 'GP perspectives of paramedic referrals to urgent and primary care', *Journal of Paramedic Practice*, 10: 284-89.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Butterworth, Jo, Anna Sansom, Laura Sims, Mark Healey, Ellie Kingsland, and John Campbell. 2017. 'Pharmacists' perceptions of their emerging general practice roles in UK primary care: a qualitative interview study', *The British journal of general practice : the journal of the Royal College of General Practitioners*, 67: e650-e58.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Callejas-Diaz, L., K. Seymour, and S. Woodcock. 2012. 'The specialist bariatric pharmacist -who's prescribing your medicines?', *Obesity Surgery*, 22: 1151-52.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Callery, Peter, Richard G. Kyle, Helen Weatherly, Michele Banks, Carol Ewing, Peter Powell, and Susan Kirk. 2013. 'Comparison of the costs of care during acute illness by two community children's nursing teams', *Emergency medicine journal : EMJ*, 30: 1029-32.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Candy, E. A., and S. Haworth-Booth. 2015. 'Physiotherapy led musculoskeletal interface	Abstract or other output reporting on the same findings as an included paper

Author	Rationale for Exclusion
(MSKI) team evaluation of patient experience, practice and evaluation of discharge outcomes', *Physiotherapy (United Kingdom)*, 101: eS197.	
Carberry, Martin. 2006. 'Hospital emergency care teams: our solution to out of hours emergency care', *Nursing in Critical Care*, 11: 177-87.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Carberry, Martin, Sarah Connelly, and Jennifer Murphy. 2013. 'A prospective audit of a nurse independent prescribing within critical care', *Nursing in Critical Care*, 18: 135-41.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Carey, Nicola, and Molly Courtenay. 2010. 'An exploration of the continuing professional development needs of nurse independent prescribers and nurse supplementary prescribers who prescribe medicines for patients with diabetes', *Journal of Clinical Nursing*, 19: 208-16.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Carey, Nicola Jane. 2010. 'An Evaluation of a Diabetes Specialist Nurse Prescriber on In-Patient Services', *Evaluation of a Diabetes Specialist Nurse Prescriber on In-Patient Services*: 1-1.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Carey, Nicola, Molly Courtenay, June James, Mimi Hills, and Jonathan Roland. 2008. 'An evaluation of a Diabetes Specialist Nurse prescriber on the system of delivering medicines to patients with diabetes', *Journal of Clinical Nursing*, 17: 1635-44.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Carey, Nicola, Karen Stenner, and Molly Courtenay. 2009. 'Adopting the prescribing role in practice: exploring nurses' views in a specialist children's hospital', *Paediatric nursing*, 21: 25-9.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Carey, N., K. Stenner, and M. Courtenay. 2009. 'Views on implementing nurse prescribing in a specialist children's hospital', *Nurse Prescribing*, 7: 205-10.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Carey, Nicola, Karen Stenner, and Molly Courtenay. 2010. 'Stakeholder views on the impact of nurse prescribing on dermatology services', *Journal of Clinical Nursing*, 19: 498-506.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Carey, Nicola, Molly Courtenay, and Karen Stenner. 2013. 'The prescribing practices of nurses who care for patients with skin conditions: a questionnaire survey', *Journal of Clinical Nursing*, 22: 2064-76.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Carey, Nicola, Karen Stenner, and Molly Courtenay. 2014. 'An exploration of how nurse prescribing is being used for patients with respiratory conditions across the east of England', *BMC Health Services Research*, 14: 27.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Casey, Mary, Laserina O'Connor, Emma Nicholson, Rita Smith, Denise O'Brien, Denise O'Leary, Gerard M. Fealy, Martin S. McNamara, Diarmuid Stokes, and Claire Egan. 2017. 'The perceptions of key stakeholders of the roles of specialist and advanced nursing and midwifery practitioners', *Journal of Advanced Nursing*, 73: 3007-16.	Not UK
Chadwick, Oliver, Seen Nee Chia, and Alan Rotchford. 2019. 'Establishing an allied health professional delivered selective laser trabeculoplasty service in Scotland', *Ophthalmic & physiological optics : the journal of the British College of Ophthalmic Opticians (Optometrists)*, 39: 216-23.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Chan, L. C., and E. Hey. 2006. 'Can all neonatal resuscitation be managed by nurse practitioners?', *Archives of Disease in Childhood: Fetal and Neonatal Edition*, 91: F52-F55.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Chauhan, D., J. M. G. Larkin, S. Turajlic, and P. Hughes. 2019. 'Pharmacist and Nurse (PN) led melanoma immunotherapy clinic: Patient experience survey', *Annals of Oncology*, 30: v836-v45.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Cheater, Francine M. 2006. 'Nurse-led consultations: enhancing or diminishing the quality of primary care?', *Quality in Primary Care*, 14.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Clark, Susan, and Fiona Paul. 2012. 'The role of the nurse practitioner within the Hospital at Night service', *British journal of nursing (Mark Allen Publishing)*, 21: 1132-7.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Clarke, Alan. 2019. 'What are the clinical practice experiences of specialist and advanced paramedics working in emergency department roles? A qualitative study', *British Paramedic Journal*, 4: 1-7.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Clarke, Alan. 2019. 'What are the clinical practice experiences of specialist and advanced paramedics working in emergency department roles? A qualitative study', *British Paramedic Journal*, 4: 1-7.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Clarkson, R. J., B. Murray, and F. A. Carmichael. 2017. 'The role of radiography-qualified dental nurses', *Dental Nursing*, 13: 402-03.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Clement, M., L. Shields, and E. Polke. 2011. 'Advanced nurse Practitioner's within a retrieval service - The north thames experience', *Pediatric Critical Care Medicine*, 12: A70.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Clibbens, Richard, Angela Depledge, and Steve Hemingway. 2019. 'Developing the advanced nurse practitioner role in a memory service', *British journal of nursing (Mark Allen*	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)

Author	Rationale for Exclusion
Publishing), 28: 1251-55.	
Coates, David, Steven Rawstorne, and Jonathan Benger. 2012. 'Can emergency care practitioners differentiate between an avoided emergency department attendance and an avoided admission?', *Emergency medicine journal : EMJ*, 29: 838-41.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Cock, Karen, and Bridie Kent. 2017. 'Patient satisfaction with clinicians in colorectal 2-week wait clinics', *British journal of nursing (Mark Allen Publishing)*, 26: 319-23.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Cole, Tracey, and Karen Gillett. 2015. 'Are nurse prescribers issuing prescriptions in palliative care?', *Nurse Prescribing*, 13: 98-102.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Coleman, B., and A. Rachmawati. 2017. 'What are health and social care professionals' perspectives on expanded roles for pharmacists?', *International Journal of Pharmacy Practice*, 25: 15.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Coleman, L., and K. Piper. 2009. 'Radiographic interpretation of the appendicular skeleton: a comparison between casualty officers, nurse practitioners and radiographers', *Radiography*, 15: 196-202.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Conn, M. 2016. 'Developing the role of the palliative care advanced nurse practitioner in Ayrshire', *Palliative Medicine*, 30: S124.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Cooper, Simon, Judith O'Carroll, Annie Jenkin, and Beryl Badger. 2007. 'Collaborative practices in unscheduled emergency care: role and impact of the emergency care practitioner--quantitative findings', *Emergency medicine journal : EMJ*, 24: 630-3.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Cooper, Simon, Judith O'Carroll, Annie Jenkin, and Beryl Badger. 2007. 'Collaborative practices in unscheduled emergency care: role and impact of the emergency care practitioner--qualitative and summative findings', *Emergency medicine journal : EMJ*, 24: 625-9.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Cooper, Simon, Judith O'Carroll, Annie Jenkin, and Beryl Badger. 2008. 'Emergency care practitioners (ECP): practice and performance in the UK West country--a case study', *International Emergency Nursing*, 16: 180-4.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Cornelius, N. 2014. 'Consultant RTT-led care in palliative radiation therapy', *Radiotherapy and Oncology*, 111: S184.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Coull, Alison, Ian Murray, Fiona Turner-Halliday, and Andrew Watterson. 2013. 'The expansion of nurse prescribing in Scotland: an evaluation', *British Journal of Community Nursing*, 18: 234-42.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

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Coulman, S. A., D. N. John, and W. H. Chong. 2010. 'How are pharmacists, registered as prescribers, engaging with CPD?', *International Journal of Pharmacy Practice*, 18: 69-70.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Courtenay, Molly, and Nicola Carey. 2008. 'Nurse independent prescribing and nurse supplementary prescribing practice: national survey', *Journal of Advanced Nursing*, 61: 291-9.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Courtenay, M., and N. Carey. 2008. 'The prescribing practices of nurse independent prescribers caring for patients with diabetes: findings from a national questionnaire survey', *Practical Diabetes International*, 25: 152-57.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Courtenay, Molly, Nicola Carey, and Joanna Burke. 2007. 'Independent extended nurse prescribing for patients with skin conditions: a national questionnaire survey', *Journal of Clinical Nursing*, 16: 1247-55.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Courtenay, Molly, Nicola Carey, and Joanna Burke. 2007. 'Independent extended supplementary nurse prescribers, their prescribing practice and confidence to educate and assess prescribing students', *Nurse Education Today*, 27: 739-47.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Courtenay, Molly, Nicola Carey, and Joanna Burke. 2007. 'Independent extended and supplementary nurse prescribing practice in the UK: a national questionnaire survey', *International Journal of Nursing Studies*, 44: 1093-101.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Courtenay, M., N. Carey, K. Stenner, S. Lawton, and J. Peters. 2011. 'Patients' views of nurse prescribing: effects on care, concordance and medicine taking', *The British journal of dermatology*, 164: 396-401.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Courtenay, Molly, Nicola Carey, and Karen Stenner. 2012. 'An overiew of non medical prescribing across one strategic health authority: a questionnaire survey', *BMC Health Services Research*, 12: 138.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Courtenay, Molly, Nicola Carey, Heather Gage, Karen Stenner, and Peter Williams. 2015. 'A comparison of prescribing and non-prescribing nurses in the management of people with diabetes', *Journal of Advanced Nursing*, 71: 2950-64.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Courtenay, Molly, Riyad Khanfer, Gail Harries-Huntly, Rhain Deslandes, David Gillespie, Karen Hodson, Gary Morris, Anthony Pritchard, and Elizabeth Williams. 2017. 'Overview of the uptake and implementation of non-medical prescribing in Wales: a national survey', *BMJ Open*, 7: e015313.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Coyle, Julia, and Stephen D. Gill. 2017. 'Acceptance of primary practitioner physiotherapists in an emergency department :	Not UK

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a qualitative study of interprofessional collaboration within workforce reform', *Journal of Interprofessional Care*, 31: 226-32.	
Cross, Verity J., James T. Parker, Marie-Christine Y. L. Law Min, and Richard S. Bourne. 2018. 'Pharmacist prescribing in critical care: an evaluation of the introduction of pharmacist prescribing in a single large UK teaching hospital', *European journal of hospital pharmacy : science and practice*, 25: e2-e6.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Daoroong, Komwong, Geva Greenfield, Hadar Zaman, Azeem Majeed, Benedict Hayhoe, and Daoroong Komwong. 2018. 'Clinical pharmacists in primary care: a safe solution to the workforce crisis?', *Journal of the Royal Society of Medicine*, 111: 120-24.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Dapar, M. L. P., D. J. Mc Caig, I. T. S. Cunningham, L. Diack, and D. C. Stewart. 2010. 'Facilitators and barriers to pharmacist prescribing: Exploring the association of pharmacy practice setting', *International Journal of Pharmacy Practice*, 18: 38-39.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Dawson, Deborah, and Maureen Coombs. 2008. 'The current role of the consultant nurse in critical care: consolidation or consternation?', *Intensive & critical care nursing*, 24: 187-96.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Dawson, Deborah, and Andy McEwen. 2005. 'Critical care without walls: The role of the nurse consultant in critical care', *Intensive & critical care nursing*, 21: 334-43.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Dawson, Deborah, and Andy McEwen. 2006. 'The influence of outreach in the development of the nurse consultant role in critical care: cause or effect?', *Intensive & critical care nursing*, 22: 4-11.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Devenay, S. 2011. 'An evaluation of the benefits of the Nurse Practitioner role to thoracotomy patients and staff in the west of Scotland heart and lung centre', *Lung Cancer*, 71: S26-S27.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Dixon, A. M., and C. Dearnley. 2008. 'Radiographer-performed stereotactic needle core biopsy: Making a difference', *Radiography*, 14: e85-e90.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Dixon, S., S. Mason, E. Knowles, B. Colwell, J. Wardrope, H. Snooks, R. Gorringe, J. Perrin, and J. Nicholl. 2009. 'Is it cost effective to introduce paramedic practitioners for older people to the ambulance service? Results of a cluster randomised controlled trial', *Emergency medicine journal : EMJ*, 26: 446-51.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Dobel-Ober, D., N. Brimblecombe, and E. Bradley. 2010. 'Nurse prescribing in mental health: national survey', *Journal of Psychiatric and Mental Health Nursing*, 17: 487-93.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

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Dobel-Ober, D., E. Bradley, and N. Brimblecombe. 2013. 'An evaluation of team and individual formularies to support independent prescribing in mental health care', *Journal of Psychiatric and Mental Health Nursing*, 20: 35-40.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Dobel-Ober, D., and N. Brimblecombe. 2016. 'National survey of nurse prescribing in mental health services; a follow-up 6 years on', *Journal of Psychiatric and Mental Health Nursing*, 23: 378-86.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Doherty, M., W. Jenkins, H. Richardson, A. Abhishek, D. Ashton, C. Barclay, L. Duley, H. Jones, M. Santarelli, A. Sarmanova, M. Stevenson, and W. Zhang. 2017. 'Nurse-led care versus general practitioner care of people with gout: A UK community-based randomised controlled trial', *Annals of the Rheumatic Diseases*, 76: 167.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Dossa, Nadia. 2010. 'Exploring the role of the community matron', *British Journal of Community Nursing*, 15: 23-7.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Drennan, Vari, Claire Goodman, Jill Manthorpe, Sue Davies, Cherill Scott, Heather Gage, and Steve Iliffe. 2011. 'Establishing new nursing roles: a case study of the English community matron initiative', *Journal of Clinical Nursing*, 20: 2948-57.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Drew, Kaye, Mark E. McAlindon, Reena Sidhu, and David S. Sanders. 2012. 'The way forward: the advanced endoscopy practitioner', *Gastrointestinal Nursing*, 10: 25-29.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Drudge-Coates, L., V. Khati, R. Ballesteros, C. Martyn-Hemphill, C. Brown, J. Green, B. Challacombe, and G. Muir. 2018. 'A nurse led clinic for suspected prostate cancer referrals is safe, cost and time efficient', *European Urology, Supplements*, 17: e1871.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Dunkley, M., D. Jackson, C. Rafter, J. Armstrong, E. Parnell, Y. Gelfer, and D. Eastwood. 2012. 'A physiotherapist-led ponseti service for the management of idiopathic and complex clubfoot deformity', *Journal of Pediatric Orthopaedics Part B*, 21: 95.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Earle, E. A., J. Taylor, M. Peet, and G. Grant. 2011. 'Nurse prescribing in specialist mental health (part 2): the views and experiences of psychiatrists and health professionals', *Journal of Psychiatric and Mental Health Nursing*, 18: 281-7.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Earle, E. A., J. Taylor, M. Peet, and G. Grant. 2011. 'Nurse prescribing in specialist mental health (part 1): the views and experiences of practising and non-practising nurse prescribers and service users', *Journal of Psychiatric and Mental Health Nursing*, 18: 189-97.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
East, Linda, Kate Knowles, Maria Pettman, and Leslie Fisher. 2015. 'Advanced level nursing in England: organisational challenges and opportunities', *Journal of Nursing Management*, 23: 1011-9.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Edwards, T. 2013. 'Utilisation of extended clinical skills by Paramedic Emergency Care Practitioners at the London Notting Hill Carnival', *Australasian Journal of Paramedicine*, 10: 17.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Egerton, Lisa. 2012. 'Role of advanced paediatric nurse practitioners', *Emergency Nurse*, 20: 30-34.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Evangelista, Juli-anne K. 2012. 'Paediatric nurse practitioner managed cardiology clinics : patient satisfaction and appointment access', *Journal of Advanced Nursing*.	Not UK
Evans, K., E. Hayes, S. Halawa, S. Reading, and R. Fox. 2009. 'Midwife-led assessment of non-catastrophic obstetric emergencies; work activity and patient attitudes', *Journal of obstetrics and gynaecology : the journal of the Institute of Obstetrics and Gynaecology*, 29: 296-300.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Everett, R., P. Collins, and Hp Patel. 2019. 'Advanced clinical practitioners and their role in delivering cga to streamline the management of patients living with frailty', *Age and Ageing*, 48: i1–i15.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Ezra, D. G., F. Mellington, H. Cugnoni, and M. Westcott. 2005. 'Reliability of ophthalmic accident and emergency referrals: a new role for the emergency nurse practitioner?', *Emergency medicine journal : EMJ*, 22: 696-9.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Fairley, Debra, and S. Jose Closs. 2006. 'Evaluation of a nurse consultant's clinical activities and the search for patient outcomes in critical care', *Journal of Clinical Nursing*, 15: 1106-14.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Farrington, Elizabeth Anne, Giles Maskell, and Hyder Syed Hussaini. 2012. 'Feasibility and experience of nurse-led ultrasound-guided percutaneous liver biopsy', *Frontline gastroenterology*, 3: 187-90.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Fecher, I. C., P. H. Nichols, and J. D. Winter. 2011. 'Creating and implementing a model of care for an acute care advanced nurse practitioner within colorectal surgery', *Colorectal Disease*, 13: 13.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Felton, E., T. Downey, C. Hassan, and D. McWilliams. 2018. 'An evaluation of the role of occupational therapy within a United Kingdom multi speciality critical care unit', *Intensive Care Medicine Experimental*, 6.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Fierens, A., and L. Smith. 2013. 'A rare commodity-advanced nursing practice skills optimize the use of paediatric intensive care	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no

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beds within a specialist service', *Intensive Care Medicine*, 39: S136.	data presented)
Fisher, Joanna, Martin J. Steggal, and Carol L. Cox. 2006. 'Developing the A&E nurse practitioner role', *Emergency nurse : the journal of the RCN Accident and Emergency Nursing Association*, 13: 26-31.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Ford, P. C. 2008. 'Role of the consultant radiographer: the experience of appointees', Ph.D., University of Portsmouth (United Kingdom).	Abstract or other output reporting on the same findings as an included paper
Foreman, David M., and Stephanie Morton. 2011. 'Nurse-delivered and doctor-delivered care in an attention deficit hyperactivity disorder follow-up clinic: a comparative study using propensity score matching', *Journal of Advanced Nursing*, 67: 1341-8.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Forster, D., and J. Frosdick. 2019. 'The implementation of an advanced practitioner therapist role within a community independence service', *Age and Ageing*, 48: ii1–ii10.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Forsyth, L. J., and V. Maehle. 2010. 'Consultant radiographers: Profile of the first generation', *Radiography*, 16: 279-85.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Fotheringham, Diane. 2013. 'Confident to seek help: the development of skill and judgement in nurse practitioners. A mixed methods study', *Nurse Education Today*, 33: 701-8.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Fotheringham, Diane, Sarah Dickie, and Mark Cooper. 2011. 'The evolution of the role of the Emergency Nurse Practitioner in Scotland: a longitudinal study', *Journal of Clinical Nursing*, 20: 2958-67.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Fowler, M. N. 2018. 'Introducing the role of the advanced clinical practitioner in haematology and oncology', *Annals of Oncology*, 29: viii683–viii88.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Fox, D., J. Agnew, J. Palmer, K. Boyd, and B. Girvin. 2019. 'Impact of a pharmacist independent prescriber (PIP) on the haematology ward at the southern health and social care trust (Craigavon Area Hospital)', *International Journal of Clinical Pharmacy*, 41: 295-96.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Franks, Helen. 2014. 'The contribution of nurse consultants in England to the public health leadership agenda', *Journal of Clinical Nursing*, 23: 3434-48.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Fuller, A., W. Jenkins, M. Doherty, and A. Abhishek. 2019. 'Nurse-led care is preferred over GP-led care of gout and improves gout outcomes: results of Nottingham Gout Treatment Trial follow-up study', *Rheumatology (Oxford, England)*.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

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Funnell, Frazer, Kathy Minns, and Kim Reeves. 2014. 'Comparing nurses' and doctors' prescribing habits', *Nursing Times*, 110: 12-4.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Ganasan, S., J. Khalid, and R. Cholia. 2017. 'A pilot study of pharmacists working in an advanced role in the Urgent Care Centre Emergency Department: A quantitative study', *International Journal of Pharmacy Practice*, 25: 41-42.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Ganasan, S., J. Khalid, and S. R. Cholia. 2018. 'A pilot study of pharmacists working in an advanced role in the urgent care centre (UCC), emergency department (ED): A quantitative study', *International Journal of Pharmacy Practice*, 26: 26	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Gee, Caroline, Jervoise Andreyev, and Ann Muls. 2018. 'Developing advanced clinical practice skills in gastrointestinal consequences of cancer treatment', *British journal of nursing (Mark Allen Publishing)*, 27: 237-47.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Gerard, Karen, Michela Tinelli, Sue Latter, Alison Blenkinsopp, and Alesha Smith. 2012. 'Valuing the extended role of prescribing pharmacist in general practice: results from a discrete choice experiment', *Value in health : the journal of the International Society for Pharmacoeconomics and Outcomes Research*, 15: 699-707.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Gerard, Karen, Michela Tinelli, Sue Latter, Alesha Smith, and Alison Blenkinsopp. 2015. 'Patients' valuation of the prescribing nurse in primary care: a discrete choice experiment', *Health expectations : an international journal of public participation in health care and health policy*, 18: 2223-35.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Gerrish, Kate, Louise Guillaume, Marilyn Kirshbaum, Ann McDonnell, Angela Tod, and Mike Nolan. 2011. 'Factors influencing the contribution of advanced practice nurses to promoting evidence-based practice among front-line nurses: findings from a cross-sectional survey', *Journal of Advanced Nursing*, 67: 1079-90.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Gerrish, Kate, Ann McDonnell, Mike Nolan, Louise Guillaume, Marilyn Kirshbaum, and Angela Tod. 2011. 'The role of advanced practice nurses in knowledge brokering as a means of promoting evidence-based practice among clinical nurses', *Journal of Advanced Nursing*, 67: 2004-14.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Gerrish, Kate, Mike Nolan, Ann McDonnell, Angela Tod, Marilyn Kirshbaum, and Louise Guillaume. 2012. 'Factors influencing advanced practice nurses' ability to promote evidence-based practice among frontline nurses', *Worldviews on evidence-based*	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
nursing, 9: 30-9.	
Gibbons, H., and R. R. A. Bourne. 2009. 'Extending a nurse practitioner's role to undertake advanced procedures', *Nursing Times*, 105: 24-26.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Gibbons, V., and S. Rutherford. 2019. 'Advanced practice; strategic leadership in a neurosurgical clinic setting', *British Journal of Neurosurgery*, 33: 449.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Gifford, C., C. Evers, and S. Walden. 2013. 'What's it like to work with a clinical psychologist of a specialist learning disabilities service? Views from people with learning disabilities', *British Journal of Learning Disabilities*, 41: 114-20.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Gilfedder, Maria, Derek Barron, and Eddie Docherty. 2010. 'Developing the role of advanced nurse practitioners in mental health', *Nursing standard (Royal College of Nursing (Great Britain) : 1987)*, 24: 35-40.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Gloster, Annabella Satu, Lillian Neville, and Jill Windle. 2015. 'Effects of advanced practitioners' learning in one hospital', *Nursing management (Harrow, London, England : 1994)*, 21: 23-30.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Goemaes, Regine, Jill Shawe, Dimitri Beeckman, Elsie Decoene, Sofie Verhaeghe, and Ann Van Hecke. 2018. 'Factors influencing the implementation of advanced midwife practitioners in healthcare settings: A qualitative study', *Midwifery*, 66: 88-96.	Not UK
Goh, Leslie, Jo Samanta, and Ash Samanta. 2006. 'Rheumatology nurse practitioners' perceptions of their role', *Musculoskeletal Care*, 4: 88-100.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Goldberg, Sarah, Jo Cooper, and Catherine Russell. 2014. 'Developing advanced nursing skills for frail older people', *Nursing Older People*, 26: 20-3.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Goodwin, Mel. 2011. 'Do epilepsy specialist nurses use a similar history-taking process as consultant neurologists in the differential diagnosis of patients presenting with a first seizure?', *Seizure*, 20: 795-800.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Goodwin, M., S. Higgins, and S. Lewis. 2011. 'Epilepsy specialist nurse prescribing practice in the United Kingdom: a national questionnaire survey', *Seizure*, 20: 754-7.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Gosling, S. 2019. 'Securing influence in the advanced practice agenda: enhancing opportunities for physiotherapy workforce development through engagement in multi-	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)

Author	Rationale for Exclusion
professional initiatives...The Chartered Society of Physiotherapy UK Conference 2018, Birmingham, UK, 19-20 October 2018', *Physiotherapy*, 105: e196-e97.	
Grange, Michele. 2011. 'How community matrons perceive their effectiveness in case management', *Nursing Older People*, 23: 24-29	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Gray, J. T., and A. Walker. 2008. 'Avoiding admissions from the ambulance service: a review of elderly patients with falls and patients with breathing difficulties seen by emergency care practitioners in South Yorkshire', *Emergency medicine journal : EMJ*, 25: 168-71.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Gray, J. T., and A. Walker. 2009. 'Is referral to emergency care practitioners by general practitioners in-hours effective?', *Emergency medicine journal : EMJ*, 26: 611-2.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Greensitt, Beverley, Jordan Bowen, Sudhir Singh, Leila Vaziri, Anuja Bambarvajane, James Price, and Mridula Rajwani. 2019. 'The role of the specialist physiotherapist in ambulatory emergency care; leading on developing the frailty pathway in the ambulatory assessment unit at the John Radcliffe Hospital, Oxford', *Future healthcare journal*, 6: 41.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Greenwood, D., M. Tully, S. Martin, and D. Steinke. 2018. 'Emergency Department Pharmacist Practitioners: A new role in the NHS', *Research in Social & Administrative Pharmacy*, 14: e30-e30.	Abstract or other output reporting on the same findings as an included paper
Griffin, Miriam. 2006. 'Developing an advanced nurse practitioner service in emergency care: attitudes of nurses and doctors', *Journal of Advanced Nursing*, 56.	Not UK
Gumber, R., D. Khoosal, and N. Gajebasia. 2012. 'Non-medical prescribing: audit, practice and views', *Journal of Psychiatric and Mental Health Nursing*, 19: 475-81.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hadi, Muhammad Abdul, David Phillip Alldred, Michelle Briggs, and S. Jose Closs. 2012. 'A combined nurse-pharmacist managed pain clinic: joint venture of public and private sectors', *International Journal of Clinical Pharmacy*, 34: 1-3.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hadi, Muhammad Abdul, David Phillip Alldred, Michelle Briggs, Kathryn Marczewski, and S. Jose Closs. 2016. 'Effectiveness of a community based nurse-pharmacist managed pain clinic: A mixed-methods study', *International Journal of Nursing Studies*, 53: 219-27.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Hakim, Navid, Sangha Mitra Mummadi, Karan Jolly, Julian Dawson, and Adnan Darr. 2018. 'Nurse-led epistaxis management within the emergency department', *British journal of nursing (Mark Allen Publishing)*, 27: 41-46.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Hall, Sally, Jo Thompson, Toni Phair, and Andrew Neil Davies. 2019. 'Clinical nurse specialist prescribing in a cancer centre supportive and palliative care team', *BMJ supportive & palliative care*.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hallam, E., and C. Holborn. 2020. 'A critical evaluation of the impact of the consultant practitioner role in the management of late effects', *Radiography*, 26: S14-S15.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Halter, M., T. Marlow, C. Tye, and G. T. H. Ellison. 2006. 'Patients' experiences of care provided by emergency care practitioners and traditional ambulance practitioners: a survey from the London Ambulance Service', *Emergency medicine journal : EMJ*, 23: 865-6.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Halter, Mary, Tom Marlow, Daryl Mohammed, and George T. H. Ellison. 2007. 'A patient survey of out-of-hours care provided by Emergency Care Practitioners', *BMC emergency medicine*, 7: 4.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hampshaw, Ann. 2011. 'Role of the advanced practitioner: performing image-guided chest and ascitic drainages', *Ultrasound*, 19: 39-43.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hampson, Nuala, and Sally Ruane. 2019. 'The value of pharmacists in general practice: perspectives of general practitioners-an exploratory interview study', *International Journal of Clinical Pharmacy*, 41: 496-503.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hanna, G. G., R. E. Johnston, R. L. Eakin, J. Harney, K. P. Rooney, L. Young, and J. McAleese. 2016. 'Consultant-Led Radiation Therapy Plan Peer Review Meeting and Improved Access to and Outcomes From Curative Intent Lung Cancer Radiation Therapy', *International Journal of Radiation Oncology, Biology, Physics*, 96: E466-E66	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hardy, Maryann, and Julie Nightingale. 2014. 'Paper 2: Conceptualizing the Transition from Advanced to Consultant Practitioner: Role Clarity, Self-perception, and Adjustment', *Journal of medical imaging and radiation sciences*, 45: 365-72.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Hardy, Maryann, and Julie Nightingale. 2014. 'Paper 1: Conceptualizing the Transition from Advanced to Consultant Practitioner: Career Promotion or Significant Life Event?', *Journal of medical imaging and radiation sciences*, 45: 356-64.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Harland, Nicholas, and Brian Blacklidge. 2017. 'Physiotherapists and General Practitioners attitudes towards 'Physio Direct' phone based	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no

Author	Rationale for Exclusion
musculoskeletal Physiotherapy services: a national survey', *Physiotherapy*, 103: 174-79.	clear definition or description given so unable to assess)
Hayer, M., and C. Perry. 2006. 'Consultant midwives: Sure Start Plus and midwifery in Leicester', *RCM Midwives*, 9: 66-67.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Hemingway, S., and N. Harris. 2006. 'The development of mental health nurses as prescribers: quantifying the emergence', *Mental Health Nursing*, 26: 14-16.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Henderson, I., S. A. Mathers, J. McConnell, and D. Minnoch. 2016. 'Advanced and extended scope practice of radiographers: The Scottish perspective', *Radiography*, 22: 185-93.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Henderson, I., S. A. Mathers, and J. McConnell. 2017. 'Advanced and extended scope practice of diagnostic radiographers in Scotland: Exploring strategic imaging service imperatives', *Radiography (London, England : 1995)*, 23: 181-86.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Herklots, Annie, Anne Baileff, and Sue Latter. 2015. 'Community matrons' experience as independent prescribers', *British Journal of Community Nursing*, 20: 217-3.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hindi, Ali M. K., Elizabeth M. Seston, Dianne Bell, Douglas Steinke, Sarah Willis, and Ellen I. Schafheutle. 2019. 'Independent prescribing in primary care: A survey of patients', prescribers' and colleagues' perceptions and experiences', *Health & social care in the community*, 27: e459-e70.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Hobson, Rachel J., Jenny Scott, and Jane Sutton. 2010. 'Pharmacists and nurses as independent prescribes exploring the patient's perspective', *Family Practice*, 27: 110-20.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hollinghurst, Sandra, Sue Horrocks, Elizabeth Anderson, and Chris Salisbury. 2006. 'Comparing the cost of nurse practitioners and GPs in primary care: modelling economic data from randomised trials', *The British journal of general practice : the journal of the Royal College of General Practitioners*, 56: 530-5.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Holloway, Y. L., K. Mohammed, and D. Narayanan. 2017. 'A unique pharmacist lead lipid clinic for the service delivery of PCSK9 monoclonal inhibitor therapy in a tertiary referral centre', *Atherosclerosis. Supplements*, 28: e15-e16.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Holoyen, P. K., and A. K. Stensdotter. 2018. 'Patients with spondyloarthritis are equally satisfied with follow-up by physiotherapist and rheumatologist', *Musculoskeletal Care*, 16: 388-97.	Not UK

Author	Rationale for Exclusion
Hori, S., K. Mowle, K. Trabucchi, M. Habib, P. Donaldson, and J. McLoughlin. 2011. 'Nurse versus physician-led transrectal ultrasound guided biopsies: Outcome analysis of introduction into standard clinical practice', *BJU International*, 108: 43.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hori, Satoshi, Oliver Fuge, Kay Trabucchi, Peter Donaldson, and John McLoughlin. 2013. 'Can a trained non-physician provider perform transrectal ultrasound-guided prostatic biopsies as effectively as an experienced urologist?', *BJU International*, 111: 739-44.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Hurlock-Chorostecki, Christina, Mary van Soeren, Kathleen MacMillan, Souraya Sidani, Faith Donald, and Scott Reeves. 2015. 'Nurse practitioner interactions in acute and long-term care: an exploration of the role of knotworking in supporting interprofessional collaboration', *BMC Nursing*, 14: 1-8.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Huws, Dyfed W., Deborah Cashmore, Robert G. Newcombe, Catherine Roberts, Judith Vincent, and Glyn Elwyn. 2008. 'Impact of case management by advanced practice nurses in primary care on unplanned hospital admissions: a controlled intervention study', *BMC Health Services Research*, 8: 115.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Iliffe, Steve, Vari Drennan, Jill Manthorpe, Heather Gage, Sue L. Davies, Helen Massey, Cherill Scott, Sally Brearley, and Claire Goodman. 2011. 'Nurse case management and general practice: implications for GP consortia', *The British journal of general practice : the journal of the Royal College of General Practitioners*, 61: e658-65.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Isaac, A., S. E. Gwilym, I. N. Reilly, T. E. Kilmartin, and W. J. Ribbans. 2008. 'Interprofessional relationships between orthopaedic and podiatric surgeons in the UK', *Annals of the Royal College of Surgeons of England*, 90: 663-70.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
James, J., D. Hicks, J. Hill, and G. Vanterpool. 2012. 'Evaluation of consultant nurse led intermediate diabetes care services in England', *Diabetic Medicine*, 29: 89.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Jashapara, A. 2011. 'Critical care paramedics : delivering enhanced pre-hospital trauma and resuscitation care - a cost-effective approach', *NHS Confederation Briefing*.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Jessop, M., A. Staker, K. Day, M. Aplin, N. Ryan, H. Cripps, A. Hosur, N. Singh, A. Robinson, and S. Dizdarevic. 2014. 'Role of advanced practitioner in the clinical setting of a multidisciplinary clinic for alpha emitting 223radium-dichloride therapy for bone metastases in castration-resistant prostate cancer', *European Journal of Nuclear Medicine and Molecular Imaging*, 41: S257-S58.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)

Author	Rationale for Exclusion
Jesudason, Christabel. 2012. 'A physiotherapy service to an emergency extended care unit does not decrease admission rates to hospital : a randomised trial', *Emergency Medicine Journal*, 29.	Not UK
Jinks, Annette M., and Gill Chalder. 2007. 'Consensus and diversity: an action research study designed to analyse the roles of a group of mental health consultant nurses', *Journal of Clinical Nursing*, 16: 1323-32.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Jones, Tracey, and Christine Ashworth. 2016. 'How the Enhanced Neonatal Nurse Practitioner role has been integral to one tertiary unit's workforce plan and service delivery', *Journal of Neonatal Nursing*, 22: 147-51.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Jones, Kathryn, Margaret Edwards, and Alison While. 2011. 'The effectiveness of nurse prescribing in acute care', *Nursing Times*, 107: 18-9.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Jones, Kathryn, Margaret Edwards, and Alison While. 2011. 'Nurse prescribing roles in acute care: an evaluative case study', *Journal of Advanced Nursing*, 67: 117-26.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Kaasalainen, S., and K. Brazil. 2014. 'Perceptions of the nurse practitioner role in facilitating the implementation of an onsite pain management team in long term care', *Palliative Medicine*, 28: 753-54.	Not UK
Kaasalainen, Sharon, Ruth Martin-Misener, Nancy Carter, Alba DiCenso, Faith Donald, and Pamela Baxter. 2010. 'The nurse practitioner role in pain management in long-term care', *Journal of Advanced Nursing*, 66: 542.	Not UK
Kaasalainen, Sharon, Abigail Wickson-Griffiths, Noori Akhtar-Danesh, Kevin Brazil, Faith Donald, Ruth Martin-Misener, Alba DiCenso, Thomas Hadjistavropoulos, and Lisa Dolovich. 2016. 'The effectiveness of a nurse practitioner-led pain management team in long-term care: A mixed methods study', *International Journal of Nursing Studies*, 62: 156.	Not UK
Kalra, N., H. Selley, S. P. Solanki, and A. K. Tyagi. 2019. 'Advanced clinical practitioners in neurosurgery-current practice in the UK', *British Journal of Neurosurgery*, 33: 449.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Kanchanatheera, M. 2018. 'Audit results of patient satisfaction survey in both Medical and Nurse-led allergy clinics at Bristol Royal Children's Hospital', *Clinical and Experimental Allergy*, 48: 1545.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Kapu, A. N., C. A. McComiskey, L. Buckler, J. Derkazarian, T. Goda, M. A. Lofgren, C. K. McIlvennan, J. Raaum, P. M. Selig, C.	Not UK

Author	Rationale for Exclusion
Sicoutris, B. Todd, V. Turner, E. Card, and N. Wells. 2016. 'Advanced Practice Providers' Perceptions of Patient Workload: Results of a Multi-Institutional Survey', *The Journal of nursing administration*, 46: 521-29.	
Kellichan, L., A. O'Kane, and M. Alcock. 2019. 'An inter-professional advanced practice approach to Frailty @ the front door; optimising outcomes for patients with frailty through workforce re-design...The Chartered Society of Physiotherapy UK Conference 2018, Birmingham, UK, 19-20 October 2018', *Physiotherapy*, 105: e168-e68.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Kelly, J., P. Hogg, and S. Henwood. 2008. 'The role of a consultant breast radiographer: A description and a reflection', *Radiography*, 14: e2-e10.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Kennedy, C., C. Gray, and P. Black. 2011. 'Crossing boundaries: the role of the advanced nurse practitioner in an integrated specialist palliative care service in scotland', *European Journal of Cancer*, 47: S294.	Abstract or other output reporting on the same findings as an included paper
Kennedy, C., P. Brooks Young, J. Nicol, K. Campbell, and C. Gray Brunton. 2015. 'Blurring the boundaries between caring and curing: Contributions of the advanced nurse practitioner in a specialist, multi-professional palliative care context', *Supportive Care in Cancer*, 23: S231.	Abstract or other output reporting on the same findings as an included paper
Kerr, Lisa M. 2016. 'Advanced nurse practitioners' (emergency) perceptions of their role, positionality and professional identity', Ed.D., Sheffield Hallam University (United Kingdom).	Not UK
Komwong, Daoroong, Geva Greenfield, Hadar Zaman, Azeem Majeed, and Benedict Hayhoe. 2018. 'Clinical pharmacists in primary care: a safe solution to the workforce crisis?', *Journal of the Royal Society of Medicine*, 111: 120-24.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Lacey, C., C. Ockwell, I. Locke, K. Thomas, J. Hendry, and H. McNair. 2015. 'A prospective study comparing radiographer- and clinicianbased localization for patients with metastatic spinal cord compression (MSCC) to assess the feasibility of a radiographer-led service', *British Journal of Radiology*, 88.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Latter, Sue, Jill Maben, Michelle Myall, and Amanda Young. 2007. 'Evaluating the clinical appropriateness of nurses' prescribing practice: method development and findings from an expert panel analysis', *Quality & Safety in Health Care*, 16: 415-21.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Latter, Sue, Jill Maben, Michelle Myall, and Amanda Young. 2007. 'Evaluating nurse prescribers' education and continuing professional development for independent prescribing practice: findings from a national survey in England', *Nurse Education Today*,	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
27: 685-96.	
Latter, Sue, Jill Maben, Michelle Myall, and Amanda Young. 2007. 'Perceptions and practice of concordance in nurses' prescribing consultations: findings from a national questionnaire survey and case studies of practice in England', *International Journal of Nursing Studies*, 44: 9-18.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Latter, Sue, Andrew Sibley, Timothy C. Skinner, Sue Cradock, Katarzyna M. Zinken, Marie-Therese Lussier, Claude Richard, and Denis Roberge. 2010. 'The impact of an intervention for nurse prescribers on consultations to promote patient medicine-taking in diabetes: a mixed methods study', *International Journal of Nursing Studies*, 47: 1126-38.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Latter, Sue, Alesha Smith, Alison Blenkinsopp, Peter Nicholls, Paul Little, and Stephen Chapman. 2012. 'Are nurse and pharmacist independent prescribers making clinically appropriate prescribing decisions? An analysis of consultations', *Journal of Health Services Research & Policy*, 17: 149-56.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Laurant, M., M. Harmsen, H. Wollersheim, R. Grol, M. Faber, and B. Sibbald. 2009. 'The impact of nonphysician clinicians do they improve the quality and cost-effectiveness of health care services?', *Medical Care Research and Review*, 66: 36S-89S.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Laurant, M., M. van der Biezen, N. Wijers, K. Watananirun, E. Kontopantelis, and A. J. A. H. van Vught. 2018. 'Nurses as substitutes for doctors in primary care', *Cochrane Database of Systematic Reviews*, 2018: CD001271.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Lavery, Joanna, and Tracy Whitaker. 2018. 'Training advanced practitioners to perform lumbar puncture', *Nursing Times*, 114: 9-1.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Law, R. 2008. 'Problematic fine bore nasogastric intubation: A radiographer led service development', *Radiography*, 14: e82-e84.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Lawrence, Stephanie. 2007. 'The role of advanced nurse practitioners in nursing homes', *Independent Nurse*.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Lawther, A., E. Brownrigg, E. Adair, and B. Carey. 2019. 'The impact of pharmacist independent prescribers in the Emergency Department of the Ulster Hospital', *International Journal of Clinical Pharmacy*, 41: 346-47.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Leahy, Teresa, and Timothy J. Counihan. 2018. 'Physician and advanced nurse practitioner decision-making in the management of multiple sclerosis', *British Journal of Neuroscience Nursing*, 14: 240-48.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Lennon, Roisin, and Anne Fallon. 2018. 'The experiences of being a registered nurse prescriber within an acute service setting', *Journal of Clinical Nursing*, 27: e523-e34.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Leslie, Andrew. 2003. 'Change at work: a study of outcome and practice innovation in advanced nurse practitioner-led transport of sick newborn infants', Ph.D., Loughborough University (United Kingdom).	Before 2005
Lloyd-Rees, Johanna. 2016. 'How emergency nurse practitioners view their role within the emergency department: A qualitative study', *International Emergency Nursing*, 24: 46-53.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Locke, R., E. Wilkinson, R. Collier, and B. Harden. 2019. 'Musculoskeletal (MSK) practitioners in primary care: an evaluation of a MSK core capabilities framework and review process', *Education for primary care : an official publication of the Association of Course Organisers, National Association of GP Tutors, World Organisation of Family Doctors*: 1-4.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Lumsden, L., and P. Cosson. 2015. 'Attitudes of radiographers to radiographer-led discharge: A survey', *Radiography*, 21: 61-67.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Machin, C., J. Parker, D. Norman, and W. Hussain. 2015. 'Dermatology surgical nurse practitioners: 'Putting in the graft' to improve efficiency during Mohs micrographic surgery', *British Journal of Dermatology*, 173: 121.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Maddox, C., D. Halsall, J. Hall, and M. P. Tully. 2016. 'Factors influencing nurse and pharmacist willingness to take or not take responsibility for non-medical prescribing', *Research in social & administrative pharmacy : RSAP*, 12: 41-55.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Madigan, B., and G. J. Taylor. 2015. 'Stroke nurse practitioners-the solution to maintaining a short door to needle time?', *International Journal of Stroke*, 10: 139-40.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Manley, Kim, Jonathan Webster, Nick Hale, Nicky Hayes, and Henry Minardi. 2008. 'Leadership role of Consultant Nurses working with Older People: a co-operative inquiry', *Journal of Nursing Management*, 16: 147-58.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Marks, Darryn, Tracy Comans, Michael Thomas, Shu Kay Ng, Shaun O'Leary, Philip G. Conaghan, Paul A. Scuffham, and Leanne Bisset. 2016. 'Agreement between a physiotherapist and an orthopaedic surgeon	Not UK

Author	Rationale for Exclusion
regarding management and prescription of corticosteroid injection for patients with shoulder pain', *Manual Therapy*, 26: 216-22.	
Marpole, Alison. 2005. 'Specialist nurse practitioners in mental health: the Shropshire experience', *Nursing Older People*, 17: 20-2.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Marsden, Janet. 2013. 'Advanced practice in ophthalmic nursing : a comparison of roles and the effects of policy on practice in the UK and New Zealand', *Journal of Research in Nursing*.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Marsden, Janet Elizabeth. 2012. 'Aspects of advanced nursing practice', Ph.D., Manchester Metropolitan University (United Kingdom).	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Martino, S., and T. Odle. 2007. 'Advanced practice in radiation therapy', *Radiation Therapist*, 16: 155-61.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Mashlan, Wendy, Julie Hayes, and Ceri Thomas. 2016. 'Advanced nurse practitioner-led referral for specialist care and rehabilitation', *Nursing Older People*, 28: 24-9.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Maskrey, Margaret, Chris F. Johnson, Jason Cormack, Margaret Ryan, and Hector Macdonald. 2018. 'Releasing GP capacity with pharmacy prescribing support and New Ways of Working: a prospective observational cohort study', *The British journal of general practice : the journal of the Royal College of General Practitioners*, 68: e735-e42.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mason, Suzanne. 2005. "A national evaluation of the clinical and cost effectiveness of emergency care practitioners (phase two): final report."	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mason, Suzanne. 2006. "Evaluation of emergency care practitioners."	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mason, Suzanne. 2007. 'Effectiveness of paramedic practitioners in attending 999 calls from elderly people in the community : cluster randomised trial', *BMJ*, 335: 919-22.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mason, Suzanne. 2013. 'A pragmatic quasi-experimental multi-site community intervention trial evaluating the impact of Emergency Care Practitioners in different UK health settings on patient pathways (NEECaP Trial)', *Emergency Medicine Journal*, 29.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mason, Suzanne, Alan Fletcher, Simon McCormick, Julie Perrin, and Alan Rigby. 2005. 'Developing assessment of emergency nurse practitioner competence--a pilot study', *Journal of Advanced Nursing*, 50: 425-32.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Mason, S., P. Coleman, C. O'Keeffe, J. Ratcliffe, and J. Nicholl. 2006. 'The evolution of the emergency care practitioner role in England: experiences and impact', *Emergency medicine journal : EMJ*, 23: 435-9.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mason, Suzanne, Emma Knowles, Brigitte Colwell, Simon Dixon, Jim Wardrope, Robert Gorringe, Helen Snooks, Julie Perrin, and Jon Nicholl. 2007. 'Effectiveness of paramedic practitioners in attending 999 calls from elderly people in the community: cluster randomised controlled trial', *BMJ (Clinical research ed.)*, 335: 919.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mason, Suzanne, Colin O'Keeffe, Patricia Coleman, Richard Edlin, and Jon Nicholl. 2007. 'Effectiveness of emergency care practitioners working within existing emergency service models of care', *Emergency medicine journal : EMJ*, 24: 239-43.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mason, Suzanne, Emma Knowles, Jenny Freeman, and Helen Snooks. 2008. "Safety of paramedics with extended skills." In *Academic emergency medicine : official journal of the Society for Academic Emergency Medicine*, 607-12.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mason, Suzanne, Colin O'Keeffe, Emma Knowles, Mike Bradburn, Mike Campbell, Patricia Coleman, Chris Stride, Rachel O'Hara, Jo Rick, and Malcolm Patterson. 2012. 'A pragmatic quasi-experimental multi-site community intervention trial evaluating the impact of Emergency Care Practitioners in different UK health settings on patient pathways (NEECaP Trial)', *Emergency medicine journal : EMJ*, 29: 47-53.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Masters, Emma, Charlotte Weston, Julia Chisholm, and Louise Soanes. 2019. 'Role of the Advanced Nurse Practitioner Within Teenage and Young Adult Oncology. What is the Impact on Patient and Staff Experience of a New Nurse Practitioner Role to a Teenage and Young Adult Service?', *Journal of adolescent and young adult oncology*.	Not UK
McCann, Laura, Fran Lloyd, Carole Parsons, Gerard Gormley, Sharon Haughey, Grainne Crealey, and Carmel Hughes. 2012. '"They come with multiple morbidities": a qualitative assessment of pharmacist prescribing', *Journal of Interprofessional Care*, 26: 127-33.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
McCann, Laura M., Sharon L. Haughey, Carole Parsons, Fran Lloyd, Grainne Crealey, Gerard J. Gormley, and Carmel M. Hughes. 2015. 'A patient perspective of pharmacist prescribing: 'crossing the specialisms-crossing the illnesses'', *Health expectations : an international journal of public participation in health care and health policy*, 18: 58-68.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
McCaughan, Dorothy, Carl Thompson, Nicky Cullum, Trevor Sheldon, and Pauline Raynor. 2005. 'Nurse practitioner and practice nurses' use of research information in clinical decision making: Findings from an exploratory study', *Family Practice*, 22: 490-97.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
McConnell, Donna, Oliver D. Slevin, and Sonja J. McIlfatrick. 2013. 'Emergency nurse practitioners' perceptions of their role and scope of practice: is it advanced practice?', *International Emergency Nursing*, 21: 76-83.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
McCourt, A., and A. J. Mackridge. 2015. 'Evaluation of a pharmacist-managed inpatient anticoagulant prescribing service to a cardiac surgical ward', *International Journal of Pharmacy Practice*, 23: 90.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
McDevitt, Joe, and Vidar Melby. 2015. 'An evaluation of the quality of Emergency Nurse Practitioner services for patients presenting with minor injuries to one rural urgent care centre in the UK: a descriptive study', *Journal of Clinical Nursing*, 24: 523-35.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
McDougall, Tim. 2005. 'Child and adolescent mental health services in the UK: nurse consultants', *Journal of child and adolescent psychiatric nursing : official publication of the Association of Child and Adolescent Psychiatric Nurses, Inc*, 18: 79-83.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
McGoldrick, Ciara, Lindsay Damkat-Thomas, and Harry Lewis. 2011. 'The impact of emergency nurse practitioners on referrals to a tertiary hand trauma service: a pilot of referral quality scoring system', *The Ulster medical journal*, 80: 19-20.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
McKeag, N., P. Fenton, and H. Bingley. 2017. 'Developing the role of the inpatient Advanced Nurse Practitioner', *Bone Marrow Transplantation*, 52: 30.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Melby, Vidar, Mark Gillespie, and Stephanie Martin. 2011. 'Emergency nurse practitioners: the views of patients and hospital staff at a major acute trust in the UK', *Journal of Clinical Nursing*, 20: 236-46.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mercer, Andrew Michael. 2007. 'Role transition and the nurse practioner: an investigation into the experience of professional autonomy', Ph.D., Bournemouth University (United Kingdom).	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Miller, David R., Khyber Alam, Susan Fraser, and James Ferguson. 2008. 'The delivery of a minor injuries telemedicine service by Emergency Nurse Practitioners', *Journal of telemedicine and telecare*, 14: 143-4.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Mitchell, K. 2017. 'What are cancer advanced nurse practitioners' perceptions and experiences of introducing Holistic Needs Assessment (HNA) into clinical practice to address individual cancer patient's needs?',	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)

Author	Rationale for Exclusion
European Journal of Cancer, 72: S175.	
Mitchell, Theresa, Carole Butler-Williams, Karen Easton, Ian Ingledew, Donna Parkin, Sharon Wade, and Richard Warner. 2010. 'The consultant nurse - expert practitioner and much more', *British journal of nursing (Mark Allen Publishing)*, 19: 481-8	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Mohammed, Mohammed A., Gill Clements, Elaine Edwards, and Helen Lester. 2012. 'Factors which influence the length of an out-of-hours telephone consultation in primary care: a retrospective database study', *BMC Health Services Research*, 12: 430.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Moore, Hannah. 2012. 'The impact of the cardiac surgical nurse practitioner role on the ward', *British Journal of Cardiac Nursing*, 7: 604-05.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Morgan, Alun, and Paul Ward. 2005. 'A surgical care practitioners' pilot programme in Wales', *British journal of perioperative nursing : the journal of the National Association of Theatre Nurses*, 15: 176-9.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Morris, L., P. Moule, J. Pearson, D. Foster, and N. Walsh. 2019. 'Patient views on the advanced practitioner role in primary care: a realist review...The Chartered Society of Physiotherapy UK Conference 2018, Birmingham, UK, 19-20 October 2018', *Physiotherapy*, 105: e109-e09.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Mundt-Leach, Rosie. 2012. 'Non-medical prescribing by specialist addictions nurses', *Mental Health Practice*, 16: 28-31.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Mundt-Leach, Rosie, and Duncan Hill. 2014. 'Non-medical prescribers in substance misuse services in England and Scotland: a mapping exercise', *Mental Health Practice*, 17: 28-35.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Murdoch, Jamie, Rebecca Barnes, Jillian Pooler, Val Lattimer, Emily Fletcher, and John L. Campbell. 2014. 'Question design in nurse-led and GP-led telephone triage for same-day appointment requests: a comparative investigation', *BMJ Open*, 4: e004515.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Murrells, Trevor, Jane Ball, and Jill Maben. 2015. 'Nursing consultations and control of diabetes in general practice: a retrospective observational study', *British Journal of General Practice*, 65: 514-15.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Neary, Anna. 2014. 'Do emergency nurse practitioners provide adequate documentation?', *Emergency nurse : the journal of the RCN Accident and Emergency Nursing Association*, 22: 34-40.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)

Author	Rationale for Exclusion
Neville, Lillian, and Juliette Swift. 2012. 'Measuring the impact of the advanced practitioner role: a practical approach', *Journal of Nursing Management*, 20: 382-9.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Nichols, Jody, Rosie England, Stuart Holliday, and Julia L. Newton. 2019. 'Clinical Care Pharmacists in Urgent Care in North East England: A Qualitative Study of Experiences after Implementation', *Pharmacy (Basel, Switzerland)*, 7.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Nisbet, H. 2019. 'Non-medical prescribing for Therapeutic Radiographers - extending roles and advancing practice', *Radiotherapy and Oncology*, 133: S1217-S18.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Normann, Britt, Siri Moe, Rolf Salvesen, and Knut W. Sorgaard. 2012. 'Patient satisfaction and perception of change following single physiotherapy consultations in a hospital's outpatient clinic for people with multiple sclerosis', *Physiotherapy Theory and Practice*, 28: 108-18.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Norris, Tracey. 2006. 'The acute care nurse practitioner: challenging existing boundaries of emergency nurses in the United Kingdom', *Journal of Clinical Nursing*, 15.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Norris, Tracey, and Vidar Melby. 2006. 'The Acute Care Nurse Practitioner: challenging existing boundaries of emergency nurses in the United Kingdom', *Journal of Clinical Nursing*, 15: 253-63.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
O'Connor, Laserina, Bernadette Carpenter, Cora O'Connor, and Julie O'Driscoll. 2018. 'An interprofessional learning experience for trainee general practitioners in an academic urban minor injuries unit with advanced nurse practitioners (Emergency)', *International Emergency Nursing*, 41: 19.	Not UK
O'Hara, Rachel, Colin O'Keeffe, Suzanne Mason, Joanne E. Coster, and Allen Hutchinson. 2012. 'Quality and safety of care provided by emergency care practitioners', *Emergency medicine journal : EMJ*, 29: 327-32.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
O'Hare, S. 2020. 'Establishing a radiographer-led service of SABR for oligometastases', *Radiography*, 26: S22-S23.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
O'Keeffe, Colin, Suzanne Mason, Mike Bradburn, and Zipporah Iheozor-Ejiofor. 2011. 'A community intervention trial to evaluate emergency care practitioners in the management of children', *Archives of Disease in Childhood*, 96: 658-63.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
O'Keeffe, Colin, Suzanne Mason, and Emma Knowles. 2014. 'Patient experiences of an extended role in healthcare: comparing emergency care practitioners (ECPs) with usual providers in different emergency and	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)

Author	Rationale for Exclusion
urgent care settings', *Emergency medicine journal : EMJ*, 31: 673-4.	
Okwera, A., and S. May. 2019. 'Views of general practitioners toward physiotherapy management of osteoarthritis-a qualitative study', *Physiotherapy Theory and Practice*, 35: 940-46.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Oldknow, H., J. Bottomley, M. Lawton, C. McNulty, and E. Earle. 2010. 'Independent nurse prescribing for older people's mental health', *Nurse Prescribing*, 8: 66-69.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Oldknow, Helen, Warren Gillibrand, Mark Lawton, and Sharon Schofield. 2012. 'The future for mental health non-medical prescribers', *Nurse Prescribing*, 10: 202-05.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Oluyase, Adejoke Obirenjeyi, Duncan Raistrick, Elizabeth Hughes, and Charlie Lloyd. 2017. 'Prescribers' views and experiences of assessing the appropriateness of prescribed medications in a specialist addiction service', *International Journal of Clinical Pharmacy*, 39: 1248-55.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Organ, Katherine, Pauline Chinnick, Ian Higgison, Ben Stanhope, Rebecca Hoskins, and Jonathan Benger. 2005. 'Evaluating the introduction of a paediatric emergency nurse practitioner service', *Emergency nurse : the journal of the RCN Accident and Emergency Nursing Association*, 13: 8-11.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Osborn, Gary David, Maria Jones, Kate Gower-Thomas, and Eifion Vaughan-Williams. 2010. 'Breast disease diagnostic ability of nurse practitioners and surgeons', *Journal of Advanced Nursing*, 66: 1452-8.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Page, D., G. Grant, and C. Maybury. 2008. 'Introducing nurse prescribing in a memory clinic: service user and family carer experiences', *Dementia (14713012)*, 7: 139-60.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Paniagua, H. 2009. 'A study comparing the consultation practice of Advanced Nurse Practitioners and General Practitoners in Primary Care', Ph.D., Swansea University (United Kingdom).	Abstract or other output reporting on the same findings as an included paper
Passalent, L., C. Hawke, A. Omar, K. Alnaqbi, D. Wallis, N. Haroon, and R. D. Inman. 2015. 'A comparison of interobserver agreement between advanced practice physiotherapists and rheumatologists in the detection of axial spondyloarthritis', *Arthritis and Rheumatology*, 67: Abstract Number 3233.	Not UK
Pearce, Chris, and Helen Winter. 2014. 'Review of non-medical prescribing among acute and community staff', *Nursing management (Harrow, London, England : 1994)*, 20: 22-6.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Peckham-Cooper, A., D. Bunting, P. McElnay, R. L. Harries, and V. J. Gokani. 2016. 'The impact of the surgical care practitioner - Do they help or hinder surgical training? The trainees' perspective', *International Journal of Surgery*, 36: S106.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Percival, Natalie. 2017. 'Advanced roles in cancer nursing', *British journal of nursing (Mark Allen Publishing)*, 26: S29.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Peter, M. 2018. 'Pharmacist prescribing in neonatal intensive care units in the UK: An update', *Archives of Disease in Childhood*, 103: e1.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Phillips, Ceri J., Rhiannon Phillips Nee Buck, Chris J. Main, Paul J. Watson, Shan Davies, Angela Farr, Christie Harper, Gareth Noble, Mansel Aylward, Julie Packman, Matt Downton, and Janine Hale. 2012. 'The cost effectiveness of NHS physiotherapy support for occupational health (OH) services', *BMC Musculoskeletal Disorders*, 13: 29.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Piercy, H., G. Bell, S. Naylor, C. Hughes, and C. Bowman. 2015. 'The contribution of advanced nursing practice to HIV care: Preliminary findings of a national study', *HIV Medicine*, 16: 70.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Piercy, Hilary, Gill Bell, Charlie Hughes, Simone Naylor, and Christine A. Bowman. 2017. 'How does specialist nursing contribute to HIV service delivery across England?', *International journal of STD & AIDS*, 28: 808-13.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Prescott, Caroline, and Nick Stackhouse. 2017. 'Developing an advanced nurse practitioner approach to clinical assessments', *Emergency nurse : the journal of the RCN Accident and Emergency Nursing Association*, 24: 33-37.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Price, R. C., and S. B. Le Masurier. 2007. 'Longitudinal changes in extended roles in radiography: a new perspective', *Radiography*, 13: 18-29.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Pritchard, Michael. 2018. 'Analysis of interviews to uncover the effects of nurse prescribing on the doctor-nurse relationship', *Australian Journal of Advanced Nursing*, 36: 35-43.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Quick, Julie. 2013. 'The role of the surgical care practitioner within the surgical team', *British journal of nursing (Mark Allen Publishing)*, 22: 759-5.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Quick, Julie. 2014. 'Evaluating a specialist nurse's role in a general paediatric surgical team', *Nursing Children and Young People*, 26: 16-20.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Raguro, A., L. Bisain, P. Gencheva, M. Chandran, M. Laginaf, N. Nair, L. North, and G. Menon. 2015. 'Implementation and evaluation of a nurse-delivered intravitreal injection service', *Investigative Ophthalmology and Visual Science*, 56: 4175.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Ramaswamy, B. 2011. 'The value of non-medical prescribing by physiotherapists for patients, the service and the profession', *Physiotherapy (United Kingdom)*, 97: eS1579.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Randall, Sue, Colin Thunhurst, and Gill Furze. 2016. 'Community matrons as problem-solvers for people living with multi-co-morbid diseases', *British Journal of Community Nursing*, 21: 594-98.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Rawlinson, E., S. Stefan, L. Lopes, and J. Khan. 2019. 'Developing the Role of Advanced Colorectal Nurse Practitioners with, Impact on strengthening Teamwork, Patient Safety and Training: Testimony of the Portsmouth Colorectal Team', *European Journal of Surgical Oncology*, 45: 2227.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Reid, F., S. Maxwell, A. Power, D. Stewart, A. Watson, and L. Zlotos. 2016. 'Performance of pharmacist independent prescribers in the UK prescribing safety assessment', *International Journal of Pharmacy Practice*, 24: 12-13.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Richardson, B., L. Shepstone, F. Poland, M. Mugford, B. Finlayson, and N. Clemence. 2005. 'Randomised controlled trial and cost consequences study comparing initial physiotherapy assessment and management with routine practice for selected patients in an accident and emergency department of an acute hospital', *Emergency medicine journal : EMJ*, 22: 87-92.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Riley, Ruth, Marjorie C. Weiss, Jo Platt, Gordon Taylor, Susan Horrocks, and Andrea Taylor. 2013. 'A comparison of GP, pharmacist and nurse prescriber responses to patients' emotional cues and concerns in primary care consultations', *Patient education and counseling*, 91: 65-71.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Roberts, R., A. P. Moore, and R. Barnett. 2018. 'Service evaluation of a physiotherapist-led botulinum toxin (PLBT) injection therapy clinic', *Toxicon*, 156: S98.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Rose, G., and M. Usman. 2018. 'Is there a need for a pharmacist prescriber assessing bone protection for hospital inpatients following a fragility fracture', *Osteoporosis International*, 29: S643.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Ross, J. D. 2015. 'Mental health nurse prescribing: the emerging impact', *Journal of Psychiatric and Mental Health Nursing*, 22: 529-42.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Ross, J. D., and A. M. Kettles. 2012. 'Mental health nurse independent prescribing: what are nurse prescribers' views of the barriers to implementation?', *Journal of Psychiatric and Mental Health Nursing*, 19: 916-32.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Ross, J. D., A. Clarke, and A. M. Kettles. 2014. 'Mental health nurse prescribing: using a constructivist approach to investigate the nurse-patient relationship', *Journal of Psychiatric and Mental Health Nursing*, 21: 1-10.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Rosser, Elizabeth, Rachael Grey, Deborah Neal, Julie Reeve, Caroline Smith, and Janine Valentine. 2017. 'Supporting clinical leadership through action: The nurse consultant role', *Journal of Clinical Nursing*, 26: 4768-76.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Rosser, Elizabeth, Rachael Grey, Deborah Neal, Julie Reeve, Caroline Smith, Janine Valentine, and Kate Brookman. 2017. 'The consultant practitioner: an evolving role to meet changing NHS needs', *British journal of nursing (Mark Allen Publishing)*, 26: 1065-69.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Ryan, N., C. Chambers, C. Ralph, D. England, and F. Cusano. 2013. 'Evaluation of clinical pharmacists' follow-up service in an oncology pain clinic', *Supportive Care in Cancer*, 21: S200-S01.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Ryan, Padhraig, Paul Revill, Declan Devane, and Charles Normand. 2013. 'An assessment of the cost-effectiveness of midwife-led care in the United Kingdom', *Midwifery*, 29: 368-76.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Ryan, Kath, Nilesh Patel, Helen Pinney, Graham Stretch, Hamza Abu-Elmagd, and Wing Man Lau. 2018. 'Pharmacists in general practice: a qualitative interview case study of stakeholders' experiences in a West London GP federation', *BMC Health Services Research*, 18.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Salisbury, C., N. E. Foster, C. Hopper, A. Bishop, S. Hollinghurst, J. Coast, S. Kaur, J. Pearson, A. Franchini, J. Hall, S. Grove, M. Calnan, J. Busby, and A. A. Montgomery. 2013. 'A pragmatic randomised controlled trial of the effectiveness and cost-effectiveness of 'PhysioDirect' telephone assessment and advice services for physiotherapy', *Health technology assessment (Winchester, England)*, 17: 1-vi.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Salter, Charlotte, Richard Holland, Ian Harvey, and Karen Henwood. 2007. '"I haven't even phoned my doctor yet." The advice giving role of the pharmacist during consultations for medication review with patients aged 80 or more: qualitative discourse analysis', *BMJ (Clinical research ed.)*, 334: 1101.	Not UK
Sanders, Christopher, and Graham Ashman. 2018. 'The impact of an Advanced Nurse	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review

Author	Rationale for Exclusion
Practitioner training programme in an acute stroke service', *British Journal of Neuroscience Nursing*, 14: 130-34.	paper, role description, service description, no data presented)
Sanders, C., S. Rafael, F. Fox, M. Ferreira, G. Ashman, L. Silva, W. Sage, D. Wooding, T. Bailey, T. Smith, and J. Marques. 2017. 'Impact of an advanced stroke nurse practitioner training programme to request acute CT head scans on acute admission to scan times', *International Journal of Stroke*, 12: 33.	Not UK
Sandhu, H., J. Dale, N. Stallard, R. Crouch, and E. Glucksman. 2009. 'Emergency nurse practitioners and doctors consulting with patients in an emergency department: a comparison of communication skills and satisfaction', *Emergency medicine journal : EMJ*, 26: 400-4.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Sargent, Penny, and Ruth Boaden. 2006. 'Implementing the role of the community matron', *Nursing Times*, 102: 23-4.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Sargent, Penny, Ruth Boaden, and Martin Roland. 2008. 'How many patients can community matrons successfully case manage?', *Journal of Nursing Management*, 16: 38-46.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Saunders, R., P. Black, and E. Mills. 2015. 'What is the working relationship between practice pharmacists and general practitioners?', *International Journal of Pharmacy Practice*, 23: 67.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Scrafton, Jane, John McKinnon, and Roslyn Kane. 2012. 'Exploring nurses' experiences of prescribing in secondary care: informing future education and practice', *Journal of Clinical Nursing*, 21: 2044-53.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Seal, Rebecca. 2017. 'Can advanced musculoskeletal physiotherapy practitioners help to relieve some of the pressures on the emergency department?', *International Emergency Nursing*, 35: 59-61.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Shack, N., and D. M. Eastwood. 2006. 'Early results of a physiotherapist-delivered Ponseti service for the management of idiopathic congenital talipes equinovarus foot deformity', *The Journal of bone and joint surgery. British volume*, 88: 1085-9.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Silvaggi, Andrea, Shereen Nabhani-Gebara, and Scott Reeves. 2017. 'Expanding pharmacy roles and the interprofessional experience in primary healthcare: A qualitative study', *Journal of Interprofessional Care*, 31: 110-11.	Not UK
Sivendran, S., R. Holliday, K. De La Torre, and K. B. Newport. 2014. 'Impact of a nurse practitioner-staffed, symptom-management clinic on emergency department utilization in a	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)

Author	Rationale for Exclusion
large community oncology cancer institute', *Journal of Clinical Oncology*, 32.	
Sivendran, S., R. Holliday, R. Guittar, C. Cox, and K. Newport. 2016. 'The impact of a nurse practitioner-led symptom clinic on Emergency department use in cancer patients', *Journal of Community and Supportive Oncology*, 14: 268-72.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Sloan, M., S. Dean, and H. Rachel. 2016. 'Advanced nurse practitioners (ANPs)-an audit of services provided in tertiary paediatric oncology centres in the UK', *Pediatric Blood and Cancer*, 63: S219.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Slynn, Cathy, and Corrina Hulkes. 2012. 'Developing a nurse-led child sedation service', *Nursing Children and Young People*, 24: 20-2.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Smith, J., G. Yeowell, and F. Fatoye. 2016. 'Clinical and cost-effectiveness of a physiotherapy led case management service for back pain', *Physiotherapy*, 102: e133-e34.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
South, G. 2010. 'Acute care of patients with COPD-A nurse-led model of care', *American Journal of Respiratory and Critical Care Medicine*, 181: A2382.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Spooner, L., and G. Abraham. 2013. 'Patient perceptions of pharmacist involvement in HCV management', *Pharmacotherapy*, 33: e215.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Stenner, Karen, and Molly Courtenay. 2008. 'The role of inter-professional relationships and support for nurse prescribing in acute and chronic pain', *Journal of Advanced Nursing*, 63: 276-83.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Stenner, Karen, and Molly Courtenay. 2008. 'Benefits of nurse prescribing for patients in pain: nurses' views', *Journal of Advanced Nursing*, 63: 27-35.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Stenner, Karen L., Molly Courtenay, and Karin Cannons. 2011. 'Nurse prescribing for inpatient pain in the United Kingdom: a national questionnaire survey', *International Journal of Nursing Studies*, 48: 847-55.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Stenner, Karen L., Molly Courtenay, and Nicola Carey. 2011. 'Consultations between nurse prescribers and patients with diabetes in primary care: A qualitative study of patient views', *International Journal of Nursing Studies*, 48: 37-46.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Stenner, Karen, Suzanne van Even, and Andy Collen. 2019. 'Early adopters of paramedic prescribing: a qualitative study', *British Paramedic Journal*, 4: 57-57.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to

Author	Rationale for Exclusion
	assess)
Stephens, J. C., G. R. Rowlands, C. Hogan, and M. J. Wareing. 2006. 'Role of the nurse practitioner in the ENT emergency clinic', *CME Bulletin Otorhinolaryngology Head and Neck Surgery*, 9: 53-54.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Stevenson, Kay. 2011. 'Professional development: integrating the consultant physiotherapist role within a musculoskeletal interface service', *Musculoskeletal Care*, 9: 49-53.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Stewart, Derek C., Johnson George, Christine M. Bond, I. T. Scott Cunningham, H. Lesley Diack, and Dorothy J. McCaig. 2008. 'Exploring patients' perspectives of pharmacist supplementary prescribing in Scotland', *Pharmacy world & science : PWS*, 30: 892-7.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Stewart, Derek C., Johnson George, Christine M. Bond, H. Lesley Diack, Dorothy J. McCaig, and Scott Cunningham. 2009. 'Views of pharmacist prescribers, doctors and patients on pharmacist prescribing implementation', *The International journal of pharmacy practice*, 17: 89-94.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Stewart, D., K. MacLure, C. Bond, S. Cunningham, L. Diack, J. George, and D. McCaig. 2010. 'Pharmacist prescribing in primary care: The views of nominated patients across Great Britain who had experienced the service', *International Journal of Pharmacy Practice*, 18: 15-16.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Stewart, Derek C., Katie Maclure, Christine M. Bond, Scott Cunningham, Lesley Diack, Johnson George, and Dorothy J. McCaig. 2011. 'Pharmacist prescribing in primary care: the views of patients across Great Britain who had experienced the service', *The International journal of pharmacy practice*, 19: 328-32.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Stewart, Derek, Katie MacLure, Vibhu Paudyal, Carmel Hughes, Molly Courtenay, and James McLay. 2013. 'Non-medical prescribers and pharmacovigilance: participation, competence and future needs', *International Journal of Clinical Pharmacy*, 35: 268-74.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Sutton, J., D. A. Taylor, and H. E. Dawson. 2010. 'Pharmacist prescribing in clozapine clinics', *International Journal of Pharmacy Practice*, 18: 25.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Swaby-Larsen, Dorthe. 2009. 'X-ray interpretation by emergency nurse practitioners', *Emergency nurse : the journal of the RCN Accident and Emergency Nursing Association*, 17: 24-8.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Tabrett, S., J. Clegg, P. Munyard, and Y. Kumar. 2014. 'ANNP (Advanced Neonatal Nurse Practitioner) workforce: Balancing service provision and training in a local Neonatal Unit (NNU)', *Archives of Disease in Childhood*, 99: A545-A46.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Taylor, Nicholas F., Emily Norman, Clarice Tang, and Leanne Roddy. 2011. 'Primary contact physiotherapy in emergency departments can reduce length of stay for patients with peripheral musculoskeletal injuries compared with secondary contact physiotherapy : a prospective non-randomised controlled trial', *Physiotherapy*, 97: 107-14.	Not UK
Teare, Jean, Maria Horne, Gill Clements, and Mohammed A. Mohammed. 2017. 'A comparison of job descriptions for nurse practitioners working in out-of-hours primary care services: implications for workforce planning, patients and nursing', *Journal of Clinical Nursing*, 26: 707-16.	Sample is mixed (e.g. ACP-specific findings are not clearly reported or ACPs do not constitute the majority of the sample)
Thurtle, Val. 2007. 'Challenges in health visitor prescribing in a London primary care trust', *Community practitioner : the journal of the Community Practitioners' & Health Visitors' Association*, 80: 26-30.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Tilley, Steve, Mary Chambers, Ann Kutney Lee, Nancy P. Hanrahan, Linda H. Aiken, and Michael B. Blank. 2006. 'Perceived facilitators and barriers to the implementation of an advanced practice: nursing intervention for HIV regimen adherence among the seriously mentally ill', *Journal of Psychiatric & Mental Health Nursing (Wiley-Blackwell)*, 13: 626-28.	Not UK
Tinelli, Michela, Alison Blenkinsopp, Sue Latter, Alesha Smith, and Stephen R. Chapman. 2015. 'Survey of patients' experiences and perceptions of care provided by nurse and pharmacist independent prescribers in primary care', *Health expectations : an international journal of public participation in health care and health policy*, 18: 1241-55.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Tingle, S. J., A. Marriott, P. F. Partington, I. Carluke, and M. R. Reed. 2016. 'Performance and learning curve of a surgical care practitioner in completing hip aspirations', *Annals of the Royal College of Surgeons of England*, 98: 543-46.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Tisdale, L. 2016. 'Early outcomes of the implementation of physiotherapist independent prescribing in a specialist rehabilitation service for persons with lower limb amputation', *Physiotherapy*, 102: e100-e01.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Treeby, J. 2010. 'Advanced practitioner role-where? Why? How? So what?', *Journal of Radiotherapy in Practice*, 9: 195.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to

Author	Rationale for Exclusion
	assess)
Trevatt, Paul, and Alison Leary. 2010. 'A census of the advanced and specialist cancer nursing workforce in England, Northern Ireland and Wales', *European journal of oncology nursing : the official journal of European Oncology Nursing Society*, 14: 68-73.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Trompeter, Alex, Naveed Shaikh, Chris Bateup, and Simon Palmer. 2010. 'Clinical diagnosis of soft tissue injuries to the knee by physiotherapists and orthopaedic surgeons: is there a difference between the two professions?', *Hong Kong Physiotherapy Journal*, 28: 16-18.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Turbett, Colin. 2012. 'Social Work with Children and Families: Developing Advanced Practice', *British Journal of Social Work*, 42: 1225-27.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Turner, Bruce, and Philippa Aslet. 2011. 'Nurse practitioner-led prostate biopsy in the United Kingdom', *Urologic nursing*, 31: 351-3.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Turner, Bruce, Sacha Ali, Lawrence Drudge-Coates, Jhumur Pati, Vinod Nargund, and Paula Wells. 2016. 'Skeletal Health Part 2: Development of a Nurse Practitioner Bone Support Clinic for Urologic Patients', *Urologic nursing*, 36: 22-6.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Varley, Anna, Fiona C. Warren, Suzanne H. Richards, Raff Calitri, Katherine Chaplin, Emily Fletcher, Tim A. Holt, Valerie Lattimer, Jamie Murdoch, David A. Richards, and John Campbell. 2016. 'The effect of nurses' preparedness and nurse practitioner status on triage call management in primary care: A secondary analysis of cross-sectional data from the ESTEEM trial', *International Journal of Nursing Studies*, 58: 12-20.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
von Vopelius-Feldt, Johannes, and Jonathan Benger. 2014. 'Critical care paramedics in England: a national survey of ambulance services', *European journal of emergency medicine : official journal of the European Society for Emergency Medicine*, 21: 301-4.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Walker, A., F. Sibley, A. Carter, and M. Hurley. 2017. 'Social return on investment analysis of a physiotherapy-led service for managing osteoarthritis in primary care', *The Lancet*, 389: S98.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Walton, M. J., J. C. Walton, M. Bell, and B. E. Scammell. 2008. 'The effectiveness of physiotherapist-led arthroplasty follow-up clinics', *Annals of the Royal College of Surgeons of England*, 90: 117-19.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Warr, Jerry. 2006. 'Clinical decision-making and the nurse consultant role', *Nursing Times*, 102: 36-7.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Watson, Wendy, Caroline Mozley, Judith Cope, Dianne Hart, Diana Kay, Karen Cowley, Jayne Pateraki, and George Priestley. 2006. 'Implementing a nurse-led critical care outreach service in an acute hospital', *Journal of Clinical Nursing*, 15: 105-10.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Watts, R. A., J. Mooney, G. Barton, A. J. MacGregor, L. Shepstone, L. Irvine, and D. G. I. Scott. 2015. 'The outcome and cost effectiveness of nurse led care in the community in people with rheumatoid arthritis: A pragmatic study', *Rheumatology (United Kingdom)*, 54.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Webb, K., A. Franklin, A. Stewart, and S. Otter. 2018. 'Implementing Radiographer-led Online Soft Tissue Verification in Cervical Cancer IMRT to Improve Planning Target Volume Coverage', *Clinical Oncology*, 30: S11-S12.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Weiss, Marjorie C., Jo Platt, Ruth Riley, Gordon Taylor, Susan Horrocks, and Andrea Taylor. 2013. 'Solicitations in GP, nurse and pharmacist prescriber consultations: an observational study', *Family Practice*, 30: 712-8.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Weiss, Marjorie C., Jo Platt, Ruth Riley, Betty Chewning, Gordon Taylor, Susan Horrocks, and Andrea Taylor. 2015. 'Medication decision making and patient outcomes in GP, nurse and pharmacist prescriber consultations', *Primary Health Care Research & Development*, 16: 513-27.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
White, H., A. Le May, and E. Cluett. 2016. 'Evaluating a midwife-led model of antenatal care for women with a previous caesarean section: A retrospective, comparative cohort study', *BJOG: An International Journal of Obstetrics and Gynaecology*, 123: 91.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Wilcock, Michael, and Paul Hughes. 2015. 'GPs' perceptions of pharmacists working in surgeries', *Prescriber*, 26: 29-31.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Wilkins, Richard A. 2018. 'PODIATRIC EXTENDED SCOPE PRACTICE IN HAEMOPHILIA', *Podiatry Now*, 21: 16-17.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Williams, J., I. Russell, D. Durai, W. Cheung, A. Farrin, K. Bloor, S. Coulton, and G. Richardson. 2006. 'What are the clinical outcome and cost-effectiveness of endoscopy undertaken by nurses when compared with doctors? A Multi-Institution Nurse Endoscopy Trial (MINuET)', *Health Technology Assessment*, 10: iii-209.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Author	Rationale for Exclusion
Winstanley, Louise, and Wendy Brennan. 2007. 'Advanced practice and support in prescribing and medicine management for care homes', *Journal of Care Services Management*, 1: 233-44.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Worthy, M. 2016. 'Setting up an occupational therapy led fracture bracing service for orthopaedic patients...39th annual conference and exhibition of the College of Occupational Therapists, Brighton and Sussex, England. June 30-July 2, 2015', *British Journal of Occupational Therapy*, 79: 61-61.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Woznitza, N. 2017. 'Advanced practice radiographers: What can be achieved?', *Journal of Medical Radiation Sciences*, 64: 73.	Not research, audit or service evaluation (e.g. discussion paper, editorial, expert opinion, review paper, role description, service description, no data presented)
Wright, Kerri, Sherrie Ryder, and Mamood Gousy. 2007. 'Community matrons improve health: patients' perspectives', *British Journal of Community Nursing*, 12: 453-9.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Wright, Kerri, Sherrie Ryder, and Mamood Gousy. 2007. 'An evaluation of a community matron service from the patients' perspective', *British Journal of Community Nursing*, 12: 398-403.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Wright, David J., Richard J. Adams, Jeanette Blacklock, Sarah A. Corlett, Rebecca Harmston, Margaret McWilliams, Stephen-Andrew Whyte, and Gail Fleming. 2018. 'Longitudinal qualitative evaluation of pharmacist integration into the urgent care setting', *Integrated pharmacy research & practice*, 7: 93-104.	Not relevant to review objectives (e.g. reports on ACP trainees, reports on educational activities, reports on a potential new service rather than an actual service, not relevant)
Ziegler, Lucy, Mike Bennett, Alison Blenkinsopp, and Sally Coppock. 2015. 'Non-medical prescribing in palliative care: a regional survey', *Palliative Medicine*, 29: 177-81.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)
Ziegler, Lucy, Michael I. Bennett, Matt Mulvey, Tim Hamilton, and Alison Blenkinsopp. 2018. 'Characterising the growth in palliative care prescribing 2011-2015: Analysis of national medical and non-medical activity', *Palliative Medicine*, 32: 767-74.	Role does not appear to be ACP as per the HEE definition (e.g. prescribing but other aspects of role not clear, specialist but not advanced, no clear definition or description given so unable to assess)

Supplementary File 5: Data Extraction Template – Study Characteristics

Basic study characteristics

- Author and year
- UK country
- Professional group
- Research setting
- Number of research sites
- Study aims
- Patient/client group
- Research methodology
- Data collection methods
- Study participants
- Outcome measures
- Overall author conclusions
- Type of publication
- JBI level of evidence

Study characteristics illuminating 'structural' aspects of ACP role implementation and evaluation[1]

- ACP role title
- Aspect of ACP role reported (clinical, education, research leadership)
- Role definition
- Rationale for role introduction
- NHS band level of the role (if mentioned)
- Stage of role implementation (introduction stage, implementation stage, long term sustainability stage)

[1] Adapted from: Bryant-Lukosius D, Spichiger E, Martin J, Stoll H, Kellerhals SD, Fliedner M, et al. Framework for evaluating the impact of advanced practice nursing roles. *Journal of Nursing Scholarship* 2016;48(2):201-09.

Supplementary File 6: Data Extraction Templates – Process and Outcome Domains[1]

PROCESS DOMAINS	Implementation Issues	Inductively developed themes
PROCESS SUB-DOMAINS	• Barriers • Facilitators	• Autonomy • Rationale for ACP roles & services • Role definition • Funding • Role evaluation & cross-organisational engagement • Education, support & training • Career progression & pathway • Role awareness

OUTCOME DOMAINS	Patient and family outcomes	Quality of care outcomes	Healthcare provider and stakeholder outcomes	Healthcare use and cost	Organisation, professional and workforce issues
OUTCOME SUB-DOMAINS	• Health status • Health behaviours • Perceptions of care and healthcare experiences	• Access to care • Patient safety • Processes of care	• Healthcare team performance • Acceptance of, and satisfaction with role • Role support • Job satisfaction	• Cost avoidance and savings • Revenue generation • Re-admission rates • Length of hospital stay	• Staff recruitment and retention of staff and ACPs

[1] Adapted from: Bryant-Lukosius D, Spichiger E, Martin J, Stoll H, Kellerhals SD, Fliedner M, et al. Framework for evaluating the impact of advanced practice nursing roles. *Journal of Nursing Scholarship* 2016;48(2):201-09.

Sub-sub domains within two of the main outcome domains (the others do not currently have any pre-specified sub-sub domains)

Patient and Family Outcomes	Examples of possible sub-sub Domains
Health Status	• quality of life • symptom control • physical and mental health • morbidity • functional ability (e.g., perform activities of daily living) • disease specific indicators
Health behaviours	• self-management/self-efficacy • knowledge and skills • adherence • life style, involvement in healthcare decision-making
Perceptions and experience of healthcare	• satisfaction with care • patient-centredness • preferences • safety

Quality of Care	Examples of possible sub-sub Domains
Patient safety	• adverse events • complication rates
Processes of care	• appropriateness • medication use • continuity of care • care coordination • adherence to best practices
Access to care	• timeliness • responsiveness • equity

Supplementary File 7: Tables of Study Characteristics (According to Sector)

There are 4 tables of study characteristics with a full reference list at the end. For ease of navigation, the headings can be viewed by clicking on the Navigation Pane under the 'View' tab.

Secondary/Tertiary Care

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Abbas & Smith (2018)[1]	To determine whether patients within an otolaryngology department presenting with asymmetrical sensorineural hearing loss and/or unilateral tinnitus can be safely and cost-efficiently screened for acoustic neuroma by audiologists.	Audiology Department	Aud	C	Prospective case series and cost analysis	Review of patient notes between Apr 2013 - Mar 2017	1126 adult patients	Patients found to have acoustic neuroma, patients referred to otolaryngologist for further assessment, patients discharged without ENT input and departmental cost savings.	Patients with asymmetrical sensorineural hearing loss and/or unilateral tinnitus can be screened for acoustic neuroma and independently managed by audiologists, resulting in departmental cost savings of £164 850.
Abutaleb, Steinke & Williams et al (2015)[2]	To assess the glycaemic control effectiveness of a pharmacist with independent prescribing authority who run outpatient diabetes clinics in a secondary care teaching.	Diabetes Outpatient Clinic	Pharm	C	Retrospective secondary data analysis (study group: patients seen by pharmacists and control group: patients seen by doctors)	Review of clinical notes between Jan 2006 and Jan 2013); propensity score adjustment and matching was performed when exploring the relationship between study group and change in HbA1c.	1305 patients (study group n=330. control n=975)	Average change in HbA1c.	Pharmacist prescriber delivered equivalent level of glycaemic control as provided by doctors.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Alexander, Hopkins & Lalondrelle et al (2018)[3]	To assess safety of the implementation of radiographer-led soft tissue (IGRT) into routine practice.	Radiotherapy Clinic	Radiog	C	Retrospective audit	Introduction of training and competency programme. Check whether radiographer's reviewing concurred with the gold standard.	n=19 radiographers in first audit, n= 21 radiographers second audit, n=420 reviews completed by all radiographers	Gold standard achieved: >80% parity with clinicians.	Radiographers after second training achieved parity and were 80-100% in concordance with oncologists' review. Radiographer-led CC-IGRT is safe and standard practice.
Allan, Gibson & Rice et al (2012)[4]	To assess the need for investigation into conversion rates following referral to Spinal Consultant.	Physiotherapy Department	Phys	C	Audit	Data collection and analysis.	Patients referred for MRI scanning (n=194), patients referred on for a consultant opinion (n=81).	Outcomes following consultations: • Listed for surgery • Offered but declined Intervention • Vertebroplasty • Injection—NRB or Epidural • Patient admitted • Seen by consultant at other local hospital/non-spinal consultant clinic • Prescribed neuropathic medication • Ongoing monitoring (Spinal deformities) • Discharged, no intervention indicated • DNA.	Close multidisciplinary team working is valuable in providing effective patient care. The high conversion rate of such patients has shown that the patient's journey has shortened and transfer to spinal consultants for surgical intervention was appropriate.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Avery & Butler (2008)[5]	To undertake an evaluation of the diabetes nurse consultant role from a national perspective.	NR	Nurs	C, E, L, R	Evaluation	Using a 360-degree feedback evaluation tool (web-based questionnaire) and analysis of 36 performance areas cantered around 5 competency areas by independent assessors	n=9 diabetes nurse consultants and n=105 feedback responses by i.e. managers, peers, etc.	Reflections on 5 main competency areas (expert practice, leadership/consultancy, education/training, practice/service development & self leadership). Mean scores between 0 and 5.	Focus for personal and professional development. Highest score was in expert practice and lowest score in leadership.
Barton & Mashlan (2011)[6]	A service review of a secondary care advanced nurse practitioner-led service.	Elderly Care Rehabilitation Service led by Advanced Nurse Practitioner	Nurs	C	Service evaluation with qualitative discourse design	Interviews and latent content analysis	n=38 Various healthcare professionals form the service and 7 ANPs	Views of various healthcare professionals non-professionals views on whether ANPS-led rehabilitation service is fit for purpose.	The advanced nurse practitioner-led rehabilitation service was fit for purpose. Organisational challenges were identified.
Bendle, Samani & Newsom-Davis (2017)[7]	To investigate patient satisfaction with IPP-led output clinic.	Chemotherapy Clinic led by an independent pharmacist prescriber (IPP)	Pharm	C	Service evaluation	Patient satisfaction survey of 11 patients who had at least 2 consultations with the IPP	n=8/11 patients responded to the survey and had n=58 consultations by IPP	Patient satisfaction.	No safety concerns and patients were satisfied with the service. An IPP-led clinic should be considered for all oncology units.
Bradley, Rajashankar & Atkinson et al (2005)[8]	To evaluate whether radiographers trained to do so can interpret intravenous urograms as accurately as radiology specialist registrars (SpRs).	Radiology Department	Radiog	C	Prospective audit - quantitative (7 week period)	Review of intravenous urograms by consultant radiologist against gold standard after being independently reported by uroradiographers and SpRs.	n=149 intravenous urograms reports by n=7 SpRs(1-4) and n=3 uroradiographers	Correct reporting of intravenous urograms by urogrophers vs SpRs (1-4) compared against gold standard assessment from consultant uroradiologist.	The uroradiographers significantly outperformed all the SpRs from years 1 to 4, achieving 92% accuracy in interpretation compared with an experienced consultant uroradiologist.
Brealey & Scuffham (2005)[9]	To explore whether the introduction of selectively trained radiographers reporting Accident and Emergency (A&E) X-ray examinations of the appendicular skeleton affected the availability of	Radiology Department	Radiog	C	Time-series analysis	Review X-ray examinations provided by Systems and Network Services department.	Selectively trained radiographers. 418 362 examinations were performed and 325 902 were reported from February 1993 (2	Main outcome measures were changes in the number, proportion and timeliness of A&E and GP examinations reported. Mortality rate, quality of examination of the new-born (detection of key disorders), parental	Trained radiographers reporting on A&E X-ray examinations significantly improved the availability of reports for A&E and GP examinations.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
	reports for A&E and General Practitioner (GP) examinations.						years before the intervention) to January 1998 (3 years after the intervention).	satisfaction, staff turnover, cost analysis.	
Brealey, King & Hahn et al (2005)[10]	The costs and effects of introducing selectively trained radiographers reporting accident and emergency (A&E) radiographs of the appendicular skeleton in a district general hospital were assessed using a retrospective controlled before and after design.	Radiology Department	Radiog	C	Retrospective audit controlled before and after design.	Reference standard reports were compared with a random stratified sample of A&E and GP reports before and after the intervention.	200 A&E and 200 GP reports reviewed by radiographers.	The annual, average and incremental costs of radiographers and radiologists reporting A&E radiographs; effect of management;	There was a saving of £361 per annum to the X-ray Department. In conclusion this study provides further evidence that selectively trained radiographers can accurately report A&E plain radiographs and at no additional cost.
Brealey, King & Hahn et al (2005)[11]	To assess selectively trained radiographers and consultant radiologists reporting plain radiographs for the Accident and Emergency Department (A&E) and general practitioners (GPs) within a typical hospital setting.	Radiology Department	Radiog	C	Retrospective audit		Radiographers (n=2), consultant radiologists (n=8), and a reference standard radiologist.	Did the radiographer and radiologist reports agreed with the reference standard report? Did radiographer and radiologist incorrect reports affected confidence in clinician's diagnosis and treatment plans, and patient outcome?	There is the potential to extend the reporting role of selectively trained radiographers to include plain radiographs for all A&E and GP patients. Further research conducted during clinical practice at a number of sites is recommended.
Brealey, Piper & King et al (2013)[12]	To assess agreement between trained radiographers and consultant radiologists compared with an index radiologist when reporting on magnetic resonance imaging (MRI) examinations of the knee and lumbar spine and to examine the subsequent effect of discordant reports on patient management and outcome.	MSK Radiology Department	Radiog	C	Service evaluation (prospective)	Assessment of a random sample of MRI reporting by radiographers and radiologists. Assessment of discordant reports for clinical significance by orthopaedic surgeon.	MSK patients	n=326 MSK MRI reports independently reported by 2 radiographers and 2 non-MSK radiologists.	Agreement of report findings & assessment of clinical significance of discordant reports.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Brown, Bonnington & Shokuhi et al (2015)[13]	NR	Breast Clinic	Nurs	C	Retrospective audit	Data was collected from patients' medical notes post symptomatic breast clinic visit. Patients who had a biopsy were re-audited to correlate the final histology of the biopsy with the overall differential diagnostic score following clinical examination.	n=485 patients' medical notes post symptomatic clinic visits. 38% of patients were seen by ANPs of which only 2.8% needed medical review.	Final histology of the biopsy with the overall differential diagnostic score following clinical examination by ANP.	The ANP role is safe and effective in the symptomatic breast clinic. The concordance of examination and histology measured a high level of accuracy. The ANP Team's clinical assessments were accurate with histology on 189 of 190 patients. ANPs can work autonomously with only few patients requiring a medical review after assessment by the ANP.
Buckley, Bradshaw & Gregory et al (2018)[14]	To determine the efficacy of the radiographer-led VBT service.	NR	Radiog	C	Retrospective audit	High-intermediate risk patients (age >60 and IB,G1/2 or IA,G3; stage II,G1/2) receiving VBT with or without external beam radiotherapy (EBRT) from 1 January 2010 to 31 December 2015. Data collected from radiotherapy database and electronic records.	Patient characteristics: 1. 256 patients met inclusion criteria. 2. Median age 68 years. 3. Stage: 1A 29%, IB 54%, II 17%. 4. Endometrioid 80%, serous papillary 8%, clear cell 3%, other 9%. 5. Grade: G1 33%, G2 39%, G3 28%. 6. 87% received VBT alone (21 Gray/3#), 13% EBRT þ VBT (45Gray/25# þ 7Gray/1#). 7. 10% received chemotherapy.	1. Median follow-up 2. Vaginal recurrences 3. Isolated vaginal recurrence rate 4. G3 toxicity (EBRT + VBT)	Radiographer-led VBT service is safe and effective. No indication to implement image guidance. Isolated vaginal recurrence rate is 2.0% (target is <3%).

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Burling, Gupta, Illangovan et al (2010)[15]	To investigate performance of computed-assisted detection (CAD)-assisted radiographers interpreting computed tomography colonography (CTC) in routine practice.	Radiology Department	Radiog	C	Prospective audit	304 symptomatic patients were prospectively recruited following referral for CTC as part of routine clinical practice. Radiographers then interpret and report the findings. Examinations were double-read by trained radiographers supplemented by ''second reader'' CAD.	n=304 symptomatic patients potentially attributable to colorectal cancer	Abnormal findings on CTC, agreement between radiographers and the reference management strategy, mean interpretation time.	Routine CTC interpretation by radiographers is effective for initial triage of patients with cancer, but independent reporting is currently not recommended.
Burrows, Lesser & Kasbekar et al (2017)[16]	To report the introduction and impact of non-medical prescribing.	Independent prescriber physiotherapist led vestibular clinic	Phys	C	Service evaluation (prospective)	Survey and review of patients seen at physiotherapy-led vestibular clinic.	Patients presenting with dizziness and balance disorders.	Diagnoses, treatments and patient satisfaction were studied, with an analysis of the impact of medication management (stopping or starting medicines) on patients and service.	Vestibular physiotherapists are essential to a balance clinic, with skills matched to this role, adding value, efficacy and cost-effectiveness. Having an independent prescriber physiotherapist leading the balance clinic has reduced the number of hospital visits and onward referrals. Nearly half of all patients required medication management as part of their dizziness or balance treatment.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Candy, Haworth-Booth & Knight-Davis (2016)[17]	1. The results of the June 2012 patient experience survey 2. The results of a retrospective evaluation of the outcome, at one year, of patients discharged between December 2011 and November 2012 3. The clinical conclusions reached for those patients referred to secondary care MSK services by the team.	Physiotherapy -led MSK Clinic	Phys	C	Service evaluation	Survey & retrospective evaluation of patient records.	231(56%) responded to the PE survey, 2362(89%) discharges were reviewed; 1565 patients (61%) were discharged and not referred back, 620(26%) were referred to secondary care by MSK.	Eight monthly patient experience surveys and six monthly secondary care referral evaluations.	Physiotherapy led multi-professional teams provide effective management of MSK conditions, the majority of patients are satisfied with their care. Eighteen months to one year following discharge, only 2% of patients returned for secondary care assessment for the same condition.
Cowley, Cooper & Goldberg (2016)[18]	To explore the MDT's experiences and perception of the ANP role on an acute HCOP ward, focusing specifically on perceived effect and acceptability of the qualified ANP.	Acute Health Care of Older People (HCOP) Wards	Nurs	C	Qualitative case study	Semi-structured interviews with members of the MDT	Multidisciplinary team members n=8 (physiotherapist, occupational therapist, senior foundation training doctor, staff nurse, senior staff nurse, ward sister, pharmacist and ward discharge co-ordinator) who had daily and repeated interactions with the ANP.	MDT's experiences and perception of the ANP.	An overarching theme summarised as 'Is it a nurse? Is it a doctor? No, it's an ANP' emerged from the data. This comprised three subthemes: the missing link; facilitating and leading holistic care; and safe, high quality care. The ANP role is valued by the MDT working with them and provides a unique skill set that has the potential to enhance care of older patients living with frailty. While there are challenges to its introduction, it is a role worth introducing to older people's wards.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Cuthbertson (2019)[19]	NR	Radiology MSK Department	Radiog	C	Qualitative study	1. Interpretative Phenomenological Analysis 2. One to one, semi-structured interviews	Radiographers n=6	Perception of the reporting role, how the reporting role was performed, the influence of having practised as a radiographer prior to commencement of the reporting role and the associated increased accountability.	Participant reflections indicated positive opinion with agreement that combining the reporting role with the diagnostic radiographer role enhanced practice and increased job satisfaction. Potential for stress associated with increased responsibility and accountability was described.
Dalton (2013)[20]	To explore perceptions of junior doctors, nurses and advanced nurse practitioners (ANP) in relation to the role of the ANP.	Hospital	Nurs	C, E, R	Qualitative cross-sectional study	Focus groups and Individual semi-structured interviews; phenomenology & grounded theory	n=6 junior doctors, n=6 ward nurses and n=6 ANPs	Perceptions and understanding of the role of the ANP within the hospital at day.	Four major themes were identified – diverse definitions of the ANP role between medical and surgical wards in the hospital at day compared to hospital at night work; role vagueness and ambiguity; communication and education needs; and constraints and barriers. The study finds the need for improved education, clinical support and system management during the hospital at day, with more of an emphasis within medical wards.
Davies, Bickell & Tibby (2010)[21]	To describe the attitudes and opinions of nurses before and after the introduction of independent Retrieval Nurse Practitioners (RNP) into a critical care transport service for children.	Paediatric Intensive Care Retrieval Service	Nurs	C	Service evaluation/Descriptive comparative design	Pre/Post Survey	RNP and non-RNP PICU nurses (pre n=21 & post 20)	Attitudes and opinions (staff confidence and acceptance) of nurses.	This advanced practice development has been a challenge for the nurses and the retrieval nurse practitioners, but initial anxieties and fears of a host of anticipated problems have been largely dispelled as enhanced communication and team working were reported. Majority were confident in RNP's knowledge.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Denton (2019)[22]	To consider the activity and safety profile of ACCP external transfer of mechanically ventilated patients.	Critical Care	Nurs	C	Audit	Data collection using web based electronic data on transfer of mechanically ventilated critical care patients.	ACCPs and Mechanically ventilated critical care patients.	1. Transfers provided by ACCPs without direct medical supervision 2. Adverse events.	With adequate support, ACCPs can safely and effectively transfer mechanically ventilated critically ill patients externally. In 88.8% of transfers, no adverse events occurred.
Denton, Arora & Choyce (2018)[23]	To record the type of transfer and associated adverse events of transfers undertaken by ACCPs in the trust.	Critical Care	Nurs	C	Prospective audit	Data collection using web based anonymised forms on transfer of mechanically ventilated critical care patients between December 2016 and July 2017.	ACCPs and Critically ill patients. n=195 transfers of critically ill patients. Independent transfers by ACCPs n=177.	1. Type of transfer 2. Adverse events	A service by ACCPs of the transfer of critically ill patients, which adheres to Intensive Care Society transfer guidelines, recorded few adverse events, compared to limited published literature.
Denton, Arora & Palmer et al (2018)[24]	To describe tracheal intubations and associated adverse events undertaken by ACCPs at a large NHS Trust.	Critical Care	Nurs	C	Prospective audit	Data collection using web-based anonymised forms on consecutive tracheal intubations outside of the operating theatre between December 2016 and July 2017.	ACCPs and Critically ill patients. n=174/241 intubations were performed by ACCPs.	1. Number of rapid sequence inductions (RSI) and intubations and 2. Adverse events 3. First pass success (FPS)	There were no adverse events during the majority of the 144 ACCP delivered RSIs (n=119, 82.6%). For the 144 RSIs performed by ACCPs, first pass success (FPS) was 89.6% (n=129). Qualified ACCPs working with appropriate clinical supervision, were able to perform tracheal intubation to a comparable standard to doctors working in intensive care or emergency medicine.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Denton, Green & Palmer et al (2019)[25]	To consider the safety profile of advanced critical care practitioners in the provision of central venous catheterisation and transfer of ventilated critical care patients without direct supervision and supervised drug assisted intubation of critically ill patients.	Critical Care	Nurs	C, L	Audit	Google forms were used to collect data on frequency with which ACCPs were undertaking advanced procedures, the indications for procedures and outcomes.	Critically ill patients and ACCPs. ACCPs inserted n=248 CVCs, carried out n=325 transfers of patient in receipt of mechanical ventilation without direct medical supervision, and were involved in providing advanced airway management (intubation) for n=190 patients.	1. Number of Central venous catheterisation 2. Transfer of invasively ventilated patients 3. Number of rapid sequence inductions (RSI) and intubations	Within an accredited training curriculum, governance structure and consultant oversight, ACCPs can safely and effectively deliver CVC insertion, critical care transfer and supervised airway management.
Diver (2014)[26]	To explain the effect of using the new model (addition of ANP) on the delivery of the lung cancer service and outcomes for patients.	Oncology Department	Nurs	C	Audit	U	ANPs and Lung cancer patients.	1. Number of new appointments per year with the addition of the ANP, 2. Effectiveness of the ANP in maintaining early accessibility to appointments.	The addition of the ANP has increased the number of new appointments per year by 184. Use of an ANP to assess new patients referred with a suspected lung cancer can help support Consultants by providing additional clinic capacity. As long as each case is overseen directly by a Consultant then patient safety is maintained.
Duncan (2017)[27]	To evaluate the impact of a pharmacist prescriber role this service development, focusing on activity data and levels of satisfaction with the service amongst patients and colleagues.	Outpatient clinic in Haematology & Oncology Department	Pharm	C	Service evaluation	To record all clinic consultations with the pharmacist; questionnaires to staff and patients.	n=76 patient completed questionnaires; n=15 colleagues responded to the staff survey (8 doctors, 7 nurses/HCAs)	Patient and staff satisfaction.	A consultant pharmacist in four different outpatient clinics has reduced clinician workload, well received by patients and colleagues. This also had a positive impact on clinic waiting times.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Fish (2019)[28]	To improve the triage process and assess patients with non-inflammatory conditions in rheumatology.	Rheumatology Department	Phys	C	Service evaluation	Training was delivered through consultant shadowing, education and self-directed learning. Initial clinic templates included three clinics with 4 new patient slots. The APP pilot commenced in November 2016. Survey on patient experience was performed.	Primary care colleagues, consultants, APP and Rheumatology patients. APP has seen n=334 new patients.	Triage and clinic outcomes and patient experience feedback.	There is consistency in the triage process. Positive patient feedback reported. The APP role can be effective with appropriate support.
Ford (2010)[29]	To explore the experience of the first consultant practitioners appointed; including the appointment process, nature of the role, their perceptions of success and challenges.	Radiology Department	Radiog	C, E, L, R	Cohort study (mixed-methods)	1. The posts were set in context by comparing all their job descriptions with the original Department of Health documentation; 2. A self-administered electronic questionnaire collected; 3. A grounded theory approach using semi structured telephone interviews.	Consultant Radiographer n=10 (with less than 2 years in the post), Consultant Nurses to pilot questionnaires.	1. Views of the appointees about their roles were collected, before exploring their actual experience in practice; 2. Information about the posts and postholders perceptions of their role; 3. Experience of consultancy.	The first Consultant Radiographer's posts have been successfully established, with a wide degree of acceptance and credibility. They were strongest in the expert clinical practice element and individual patient care. Professional leadership was evident, with education and training well supported. The strategic element of roles was not well addressed, and research involvement was low.
Fox (2017)[30]	To assess, diagnose and treat older people without the need for overnight admission.	Ambulatory Care	Nurs	C	Service Evaluation	Quantitative data from the first year of RACE AEC were analysed using Quality Improvement techniques. Qualitative feedback using questionnaires.	ANPs n=6, older patients and their friends and family, one consultant.	Safety and effectiveness of Advanced Nurse Practitioner-led Ambulatory Care, Patient satisfaction.	The ambulatory clinic provides comprehensive assessment and investigations with financial and operational benefits. Patient and relative feedback has been very positive. Ambulatory care is a useful model for assessing and treating older patients in a timely fashion, as an alternative to hospital admission. ANPs can provide safe and effective ambulatory care for older patients.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Gallagher (2017)[31]	To determine the patient satisfaction of 100 patients having nurse-led IVT injections.	Ophthalmology	Nurs	C	Service Evaluation	Questionnaires.	Ophthalmic patients.	Patient experiences & satisfaction nurse-led IVT injections.	Increased capacity to provide the requisite high-quality care to this patient group.
Glendinning & Walker (2019)[32]	To examine perceptions from the nursing and medical teams of an ANP working on a gastroenterology ward.	Gastroenterology Ward	Nurs	C	Qualitative Study.	Focused groups, thematic analysis.	Doctors (n = 5), nurses (n = 5), ANPs (n = 6)	Perceptions of the value of the ANP role within the ward environment, advantages of an ANP and how the ANP assists with a doctor's role.	ANP is a great asset to a medical ward and are paramount in sharing skills and knowledge with junior doctors as well as contributing to and enhancing teamwork.
Goldfinch, Allerton & Khanduri et al (2016)[33]	To examine the impact of appointing a palliative radiotherapy (PRT) Consultant Radiographer (CR).	Cancer Centre	Radiog	C	Prospective audit.	Data collection.	Audit 1 (n= 97 patients), Audit 2 (n = 87 patients).	Demographics, treatment site, dose, fractionation, treatment indication and professionals who planned the PRT. The patient pathway from decision to treat (DTT) to commencement of PRT was scrutinized.	A CR has the potential to impact on the patient pathway, enabling quicker times from DTT to treatment.
Gregorowski, Brennan & Chapman et al (2013)[34]	To explore and analyse the nature of the NC role when working with CYP within a children's hospital.	Tertiary Paediatric Hospital	Nurs	C, L, R	Action research.	Action research meetings. The nurse consultants collated and analysed data using thematic analysis. A research fellow facilitated meetings, carried out participant observation, and coordinated the action research project.	Nurse Consultants (n = 5).	Shaping the role; shaping child-centred care through consultancy; taking responsibility for practice; and leadership.	Nurse consultants positively influence the care and treatment of CYP and families. Their influence continues to extend beyond the organisation to influence national and international healthcare agendas.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Gregory & Treece (2018)[35]	To evaluate the impact on consultant workload and to propose the plan for continuation of the role and investigation to further areas for radiographer input.	Palliative Oncology	Radiog	C	Service evaluation	Outpatient clinic was set up, and then reviewed.	Consultant Radiographer	Activity/patient contact by CR in hours (time spent in outpatient clinic, ward consultations, planning - field definitions and on-treatment review)	The consultant radiographer role has enabled 2.1 hours of additional capacity for the oncologist per week, which equates to four new patient or eight follow-up appointments or additional availability for more complex radiotherapy planning.
Hall & Wilkinson (2005)[36]	To evaluate the introduction of ANNP and review the benefits, hazards, and implications of nurse practitioner led services and to consider the problems inherent in assessing new models of care.	Neonatal Department	Nurs	C	Evaluation	Epidemiological child health data collection & literature search.	ANNPs (n =6)	Technical expertise, care, and communication, and the staff and financial aspects of the service. Variables include perinatal mortality figures, early encephalopathy rates, and a review of sentinel events, using a modification of the well established confidential enquiry process.	ANNPs can provide a high standard of neonatal care without a doctor on site; it has established the conditions needed for a successful introduction of this model of care; it has highlighted the difficulties in measuring quality of care.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Halliday, Hunter & McMillan (2018)[37]	To examine ward staff perceptions on the role of the 'hospital at day' advanced nurse practitioner (ANP)	Hospital at day' Cardiology Ward	Nurs	C, R	Qualitative Study.	Descriptive phenomenological approach, semi-structured interviews.	Medical ward staff/nurses (n=38)	Perceptions on the role of the ANP.	ANPs were identified 1. as being both clinically effective and impacting positively on organisational priorities. 2. to provide team stability, overall confusion among other members of the MDT regarding the role of the ANP. Concerns were raised that ward-based ANPs may lead to de-skilling of staff. Overall confusion among other members of the DT regarding the role of the ANP.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Harris & Paterson (2016)[38]	To explore what the core domain of research means to consultant radiographers in clinical practice and to identify the key factors that facilitate or hinder research activity by this staff group.	Radiology Department (different sub-specialities)	Radiog	R, E	Qualitative Study (part of a larger grounded theory study).	Grounded theory, electronic questionnaires.	Consultant Radiographers (n=50)	Background information about the consultant radiographer population and their views and opinions relative to the research domain of consultant level practice.	Main facilitators to research: time; skills and knowledge of the researcher; a well defined research question. Main barriers to research: lack of allocated time; lack of skills/experience; clinical workload. Many consultant radiographers appear to spend more of their time on the 'clinical expert' element of their role at the expense of the research domain. There is an urgent need for consultant radiographers to understand that research is one of the four core domains and to recognise the need to embed research into their clinical practice.
Henwood & Booth (2016)[39]	To explore the establishment of non-medical consultant roles in Radiography.	Radiology Department	Radiog	C, L	Qualitative Study	Interviews & thematic analysis.	Consultant Radiographers (n=8)	Characteristics of consultant radiographers.	The consultants shared their perceptions of being in post, including their own motivation to progress to a new role, how prepared they felt initially, the lack of role models, the lack of clarity surrounding the role and a perception of 'being on display'. One major driver comes from the need for change and improvement: personally or for their patients and service delivery. Their desire for challenge and variety, the risk of boredom without that, and a passion to make a real difference was consistent across all the consultants in this study.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Henwood, Booth & Miller (2016)[40]	To learn what supported and hindered consultant radiographers in practice.	Radiology Department	Radiog	C, L	Longitudinal Case Study (qualitative)	Extended, semi-structured interviews.	Consultant Radiographers (n=8)	Consultant radiographer's job satisfaction.	There was variation in the experiences, however all consultants reported that the introduction of their role had been beneficial to service delivery and quality of patient care. The lack of support experienced by these consultants highlights the need to strategically plan provision for the future consultants.
Heywood (2005)[41]	To examine the background, establishment and outcomes of the use of a ESP.	Orthopaedic Department	Phys	C	Service Evaluation	Data Collection	Spinal patients (n=235)	Waiting times.	The use of physiotherapists ESPs can enhance timely and appropriate patient management, but are dependent upon the availability of appropriate advance training and full support of their medical colleagues.
Hoddes, Hattab & England (2019)[42]	To evaluate the technical success, radiation dose, complications and costs from the introduction of radiographer-led nephrostomy exchange.	Nephrology Department	Radiog	C	Service Evaluation	Data extraction for each nephrostomy exchange.	Long-term nephrostomy patients (n=38)	Time interval between exchanges, radiation dose, screening time and complications.	Interventional radiographers can provide a safe, technically successful nephrostomy exchange program with radiation doses equivalent to radiologists.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Horne & Green (2013)[43]	To assess the quality of microscopy by an Advanced Practitioner Healthcare Scientist.	Histopathology Department	HSci	C	Audit	36 colorectal resections were dissected and reviewed by the Advanced Practitioner.	Colorectal Cancer patients (n=36)	Mean time taken for each dissection, correct TN staging, mean number of blocks of tumour sampled per case, assessment of extramural vascular invasion, mean number of lymph nodes retrieved per specimen, discrepancy in lymph node metastasis assessment.	Advanced Practitioners who participated in colorectal cancer dissections should be encouraged to take part in microscopic reporting of these specimens. The mean time taken for each dissection was 70 minutes and 32 out of 36 cases (88.9%) were correctly TN staged. There is a high level of concordance with the final pathologists report.
Hyde (2017)[44]	To explore how one organisation created an ANP service for out-of-hours neonatal and paediatric care in a district general hospital setting.	Neonatal & Paediatrics Department	Nurs	C	Service Evaluation	Data collection and review/appraisal exercise. Public-engagement exercise using focus groups.	ANPs	Workload in the out-of-hours period, full financial and non-financial option appraisal, opinions of children and young people, and their families	ANPs have shown to provide continuity of care, support learning, inspire continued professional development, take a lead on agendas such as the national patient safety programme.
Jackson & Carberry (2014)[45]	To report on evaluation of the specific activities, workload and patterns of prescribing of advanced nursing practice posts within a critical care setting.	Critical Care	Nurs	C	Workload Evaluation.	Data from 1 week were recorded on one post-holder and subsequently analysed. During the first evaluation the nurse practitioners worked with the consultant anaesthetist. Data were entered into Microsoft Excel and analysed using descriptive statistics.	ANCPP n=1, Consultant n=1	Clinically and patient-related activities of these post-holders.	ANPCC effectively carry out the traditional medical tasks in which they were trained. As already experienced nurses with new enhanced skills successfully contributed to and enhanced the delivery of care to the critical ill.
Judson & Nightingale (2009)[46]	To determine whether radiographers are able to perform and interpret barium swallows and meals (BSM) to an acceptable standard.	Radiology Department	Radiog	C	Retrospective audit	Data Collection & Review	Radiographers (n=3)	Radiation doses, sensitivity, specify and accuracy. Radiographers reports were compared with radiologist reports.	Appropriately trained radiographers are able to perform and interpret BSM examinations to a very high standard.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Kalra, Solanki & Tyagi (2018)[47]	To determine whether Junior Neurosurgical Trainees (JNTs) and ANPs mutually benefit from working together and positively impact on patient care.	Neurosurgery Centre.	Nurs	C	Audit	Online survey.	JNTs (n=18), ANPs (n=3)	Clinical practice, education and training, clinical governance and service development.	ANPs and JNTs working in partnership is beneficial to both groups.
Kennedy, Young & Nicol et al (2015)[48]	1. Explore the core domains of the ANP role in palliative clinical care, research, audit , education and leadership. 2. Describe the complex decision-making skills and clinical competencies for expanded practice. 3. Describe 'expanded practice' in a palliative care context.	Palliative Care	Nurs	C, E, L, R	Qualitative evaluation.	Individual/service user interviews. Focus groups.	ANP's n=2, Multi-professional staff n=14 and patients/carers n=5.	1. Core domains of the ANP role in palliative clinical care, research, audit, education and leadership. 2. Decision-making skills and clinical competencies for expanded practice.	The ANP role can flourish. It has potential to shape 'new identifies' re-construct the boundaries of nursing roles and emphasise the relationship based elements of excellent nursing work.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Kneebone, Nestel & Chrzanowska et al (2006)[49]	This paper describes the design, implementation and evaluation of a new professional role in surgery.	Different Surgical Specialties	PSP	C	Service Evaluation using a qualitative approach.	1. A 1-year training programme was designed, dealing with a wide range of knowledge, skills and attitudes. 2. Detailed evaluation of the role and the training programme was provided by an independent research team, using an interview-based qualitative approach. 3.Data collection and analysis using standard qualitative methods.	PSP (n = 27) and colleagues; 124 interviews (94 individual and 30 group) were carried out with PSPs and their colleagues.	Evaluating the role of PSPs and the training.	The role was seen as successful and positive, with great potential for dealing with reductions in junior medical cover. Each site encountered different opportunities and problems. Lack of mentorship was a key issue, and the role provoked considerable opposition in trusts. The training programme was viewed as highly successful. The perioperative specialist practitioner role differs according to local circumstances such as size of hospital and working patterns. Negative points include lack of support, anxiety and unanswerable questions about the future.
Lane & Minns (2010)[50]	To find evidence that nurse led services are successful, benefit hospitals financially and provide a streamline service for patients.	Urology Clinic	Nurs	C	Audit	2 audits, a patient satisfaction survey and a comparison of the results of prostate biopsies taken by urology consultant with those taken by urology ANP's.	NR	Reflecting on practice and looking at where improvements can be made.	Patients who have attended this clinic feel that the highest quality care has been delivered.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Lauren & Trudi (2018)[51]	To explore the opinions and attitudes of medical staff towards PIP in NICU, identifying any barriers and facilitators to the current service.	Neonatal Intensive Care Unit	Pharm	C	Qualitative Evaluation	Semi-structured interviews (purposive sample) & framework analysis.	Senior registrars and consultants working within NICU.	Opinions & attitudes towards PIP, barriers and facilitators to service	PIP service provided in NICU was fully supported. Utilising the knowledge and skills of PIP has improved the efficiency and quality of prescribing in the unit and has had a positive impact on patient care. Lack of a service at weekends and PIP being limited by multiple concomitant ward rounds were identified barriers. Important facilitators were interpersonal skills and knowledge displayed by PIP, acceptance by the medical team and positivity towards new developments shown by all staff.
Lilley (2019)[52]	To perform an audit of parent perception of the APPP role.	Respiratory Department/Emergency Department	Pharm	C	Audit	Questionnaire integrated during each APPP led consultation pre-and post-clinic.	Parent perceptions of 1 APPP led clinic (n= 132 consultations)	Pre clinic: Are you happy to see the pharmacist today instead of the consultant? (Yes/No/Will wait to see outcome). Post clinic: Did you think a pharmacist could perform this role? (Yes/No). Do you feel like you need to see the consultant still? (Yes/No) Were you happy with the consultation? (Yes/No)	In 124 consultations parents stated they would decide if they needed to see the consultant after. Of these all were happy with the outcome post consultation and did not see the consultant. It is essential to undertake advanced clinical and diagnosis skills in order to make it a successful.
Lockwood & Piper (2015)[53]	To assess the diagnostic performance of a limited group of reporting radiographers and consultant radiologists in clinical practice undertaking computed tomography (CT) head interpretation.	Radiology Department	Radiog	C	Multiple reader multiple case (MRMC) retrospective study. (A multiple reader multiple case (MRMC) alternative free response receiver operating characteristic (AFROC) methodology).	Review of 30 CT-head scans.	Consultant Radiologists (n=2), Radiographers (n=6)	Results were compared for accuracy, agreement, sensitivity, specificity.	A small group of reporting radiographers demonstrated high levels of diagnostic accuracy in the interpretation of CT head examinations that was equivalent to a small selection of consultant radiologists.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Marriage, Kanchanatheera & Thursby-Pelham (2012)[54]	To ascertain parental satisfaction with the paediatric Nurse-led allergy Clinic compared with the Medical Clinic (MC).	Paediatric Respiratory Department	Nurs	C	Service Evaluation	Survey.	Parents of paediatric patients (n=79 parental satisfaction questionnaires were performed) n=39 children were seen in the NLC and 40 in the MC	(i) duration of clinic appointments, (ii) satisfaction with the service received, (iii) provision of allergy action plans, (iv) information on the management advice and parental education received.	The type, number and severity of food allergies per child were comparable between clinic cohorts. All parents found the NLC acceptable, and overall parental satisfaction was higher than in the MC. Provision of written educational material, Allergy Action Plans and auto-injector device training was higher in the NLC.
Mashlan, Heffery & Jones (2019)[55]	To assess how ANP's can ensure a timely and specialist approach to CGA.	Acute COTE Medical Ward	Nurs	C	Evaluation.	Data collection.	Nurse Practitioners n=7.	Lengths of stay and readmissions within 28 days.	ANP's make an important contribution to the clinical care of older people living with frailty and have skills required to ensure completion of CGA.
McCoy, Lane & Kamath (2019)[56]	To evaluate the OT advanced practitioner role in an early inflammatory arthritis (EIA) clinic where patients have one-stop access to OT within the EIA clinic.	Rheumatology Department: Early inflammatory arthritis (EIA) clinic.	OT	C	Audit	Intervention provided was evaluated in accordance to NICE guidance NG 100.	OTAP and patients with IA	Total appointments; Appointments utilised; Education and screening/ onward referral for therapy services (OT, Physio and Podiatry); Supporting consultants and specialist nurse in disease monitoring; Joint/soft tissue steroid injections; Specialist hand assessment, provision of compression gloves and/or splints and appropriately timed hand exercise programmes; Functional assessment and support in maintaining home, work and social roles; Practical and emotional support with managing disease effects	The OT AP role provides patients with newly diagnosed IA timely access to therapy intervention. This reduces multiple appointments and supports the rheumatology department in meeting service demand and NICE guidelines. The service is well utilised and it is hoped that non-medical prescribing will be extended to OT to maximise the potential for this valued role.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
								such as fatigue; Patient education group within EIA clinic.	
McCrudden (2017)[57]	To complete the medication sections released by medical staff and allow the medications to be prepared in the anticipation of the clinical narrative section of the discharge letter.	Acute Hospital Pharmacy	Pharm	C	Audit	Data Collection	Patients, pharmacy staff, junior doctors and ward nursing staff.	Time to complete the discharge medications.	The time taken to complete discharge when written by a prescribing pharmacist to a clinical check by a pharmacist is the same.
McCulloch (2011)[58]	To ascertain the views on the service provided by RNP led retrievals compared to doctor led retrievals by staff at District General Hospitals.	Retrieval Service	Nurs	C, L	Service Evaluation	An electronic questionnaire was sent out to doctors and nurses who were likely to have encountered both RNP and doctor led retrievals. Thematic analysis.	RNPs (n=5), Doctors (n=37) & Nurses (n=24).	Patient management, team communication, parental communication, leadership, cannulation & patient assessment.	Overall, both doctor led and RNP led retrievals offered both comparable and very high standards of care.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
McDonnell, Goodwin & Kennedy et al (2015)[59]	To evaluate the impact of implementing Advanced Nurse Practitioner roles on patients, staff members and organizational outcomes in an acute hospital.	Acute Hospital Care	Nurs	C	Qualitative	Interviews with strategic stake holders, ANP's, and staff members and patients. Non-participating observation.	Individuals with organization-wide senior strategic posts from the fields of general management, education, medicine and nursing (n=5), senior operational managers (n=5) and consultant medical staff members (n=32).	The study relied on reported indicators of impact collected through interviews with a range of stakeholders including patients and staff members with strategic and clinical roles across the board.	This study has demonstrated that ANP's undertaking duties traditionally performed by junior doctors in acute hospital settings have a positive impact on a range of indicators relating to patients, staff members and organizational out-comes which are highly relevant to nursing.
McNeilly & Waterfield (2012)[60]	1. To determine if the physiotherapy ESP community-led injection service meets the needs of patients and achieves a good clinical outcome (by decreasing pain and increasing function) 2. To assess overall patient satisfaction.	Musculoskeletal Community Service	Phys	C	Service Evaluation	Data Collection & two stage questionnaire.	Patients with MSK pain within the community (n=50)	Patient questionnaire (pain post injection, most commonly injected site, waiting time and location, patient satisfaction with the service).	Physiotherapy ESP community-led injection service meets the needs of patients and achieves a good clinical outcome. The most commonly injected site was the knee (51%). This service is clearly considered valuable by patients. Patients were happy with both the waiting time for (83%) and the location of (96%) their appointment and 86% of patients would like to self refer to the service.
McSherry, Mudd & Campbell (2007)[61]	To evaluate the perceived impact of the nurse consultant through the lived experience of the staff.	Palliative Care, A&E & Rehabilitation Care	Nurs	C, R	Qualitative evaluation.	360-degree semi-structured interview framework. Data collected relating to each NC was analysed following the principles of the thematic analysis.	Nurse Consultants n=3, Participants to provide relevant information associated with the nurse consultant role n=10	Impact of the nurse consultant	A series of generalist themes emerged associated with how the role can be enhanced in the future by involving, informing and engaging staff and by developing a phased approach to implementing and evaluating the role.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Miller, Darcy & Friel et al (2014)[62]	To develop, implement and robustly evaluate a CP led case management pharmaceutical care service for older patients admitted to intermediate care (IC) and continued back into the community setting.	Intermediate care setting for Elderly	Pharm	C	Service Evaluation	Data collection and analysis.	Elderly patients (n=453)	Demographics; drugs taken; clinical interventions made; Eadon grading; Medication Appropriateness Index (MAI) scores; and patient outcomes 90 days post discharge.	CP case management for older people in IC demonstrated a cost- effective patient-centred model of pharmaceutical care. Both individual and total drug MAI scores on admission to and discharge from IC reduced significantly.
Moore (2017)[63]	Can a Consultant Radiographer prescribe palliative radiotherapy safely and improve service?	Radiotherapy	Radiog	C	Audit	Data Collection & Review	Lung cancer patients receiving palliative radiotherapy (n=10), Consultant Clinical Oncologist (n=4), Consultant Radiographer (n=1)	Comparison of field size and iso centre position; number of days from decision to treat to start date (patients planned by the Consultant Radiographer compared to patients planned by the Consultant Clinical Oncologist)	Consultant Radiographer can safely prescribe and plan palliative radiotherapy in the lung cancer setting and offer an efficient service to a patient group.
Mullen & Jones (2014)[64]	To evaluate a new nurse consultant-led basal cell carcinoma clinic.	Dermatology Outpatients Department	Nurs	C	Service evaluation.	A sample of 118 patients were selected to attended a nurse consultant-led BBC clinic over 12 consecutive weeks to fill out a proforma and to carry out a patient testimony.	Nurse Consultant (n=1) and patients (n=118).	Reviews of the completed proforma by the patient and patient testimonies.	Nurse consultant-led basal cell carcinoma clinic provides a coherent, safe, specialist service, encompassing surgical assessment, management and treatment to ensure a stream-lined patient focused pathway.

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Payton , Jaques & Lacey (2011)[65]	To determine the impact of a pharmacist- led diabetes outpatient clinic (ABC clinic) on patients' diabetes control.	NR	Pharm	C	Service Evaluation	Data Collection & Survey (statistical differences determined using the Wilcoxon rank test)	Patients with Diabetes	Clinic Time, Mean BP reduction (Sys/Dia), Mean % reduction in Hb1Ac, Mean Total Cholesterol reduction. Absolute and percentage changes in these data from baseline; secondary outcomes of patient satisfaction, ABC clinic pharmacist were assessed using a self-completion.	Statistically significant reductions in blood pressure, HbA1c and total cholesterol compared to baseline were recorded at 6 months, 12 months, 18 months, 24 months and on discharge. Patients held positive views of the pharmacist-led ABC clinic.
Pearse, MaClean & Ricketts (2006)[66]	To assess the activity of ESPs against three benchmark data.	Out-Patient Orthopaedic Clinic	Phys	C	Audit	Retrospective review of medical records & patient satisfaction survey.	Orthopaedic Patients (n=126)	Independent assessment and management by the ESP. Re-referral of patients. Patient satisfaction scores.	ESPs fulfilled a useful role in the orthopaedic out-patient clinic particularly in the back clinic. But, the percentage of independently managed patients was much lower than the figure quoted in the literature. The ESPs managed 82/150 patients (55%) independently. High proportion of knee, shoulder and other cases required consultant review. 97/126 (77%) patients were satisfied with their management by ESPs. Of patients who were dissatisfied, 76% did not see a consultant at any stage in their management. Patients' expectations may be a barrier to achieving greater levels of patient satisfaction.
Pottle (2005)[67]	To establish the patients clinical outcomes since their appointment.	General Cardiology Outpatients Department	Nurs	C	Service evaluation.	Questionnaires and data collection.	Nurse Consultant (n=1), patients (n=172), and GP's (n=13).	Patient's and GP's satisfaction with the clinic.	Rapid access chest pain clinics enable timely assessments of patients with chest pains and facilitate early diagnosis of cardiac disease.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Pritchard, Taylor & Foran (2020)[68]	To identify levels of satisfaction and highlight potential areas for service improvement.	Radiology Department	Radiog	C, E, L, R	Service Evaluation	Patient satisfaction survey.	HNC Patients (n=NR)	Patient satisfaction before-, during- & post-treatment.	The majority of HNC patients were happy to see a radiographer instead of a doctor and were satisfied at all three stages of the RT pathway. Patient satisfaction with information and support was lowest during the initial post-treatment period.
Punt (2010)[69]	To assess the quality of consent information and advice women are now receiving comparable to that given by consultant oncologists.	Gynaecology Department	Radiog	C, L, E	Retrospective audit	Data Collection (comparisons made to the previous audit undertaken)	Consultant Radiographer & Gynaecology patients.	Treatment options discussed, last side effects record, risk factor record.	The redesign of the patient pathway has facilitated the most appropriate and cost-effective use of medical skills for undertaking complex treatments.
Rabey, Morgans & Barrett (2008)[70]	To highlight the extent and appropriateness of surgical and radiological referrals by ESPs working in an adult orthopaedic service.	Orthopaedic Department	Phys	C	Audit	Data Collection.	ESPs, patients presenting with knee and lumbar spine disorders.	ESP referral rates to orthopaedic consultants; the percentage of patients where the entire episode of care was managed by the ESP; whether orthopaedic referrals were appropriate in terms of surgical interventions; and numbers of radiology referrals specifically for knee or lumbar complaints.	Only approximately one-tenth of patients require onwards referral to an orthopaedic surgeon, and when these referrals are made by the ESPs they are highly appropriate. Of the patients, 79 per cent had their entire episode of care managed by ESPs. Of the patients, 9 per cent were referred on for a surgical opinion from which surgical intervention was appropriate in 89 per cent of cases.

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Redwood, Lloyd & Carr et al (2007)[71]	To evaluate the impact of the nurse consultant role.	3 different universities and their trusts.	Nurs	C, E, L, R	360 degree evaluation.	Qualitative 360 degree feedback, interviews & thematic content analysis.	Nurse consultants (n=14), each NC nominated up to 10 key informants (including clinical and academic colleagues, students and managers).	Views of both stakeholders and NC post holders on: 1. Role aspiration and lived reality, 2. challenging boundaries, 3. impact and outcomes, 4. leadership.	The NC role is an important role contributing to the modernisation agenda of the NHS and the future career pathways, and professional maturity of nursing.
Rees (2014)[72]	Evaluate the current role of the consultant breast radiographer. Compare current practice with the four key components for consultant practice. Gauge the support of other radiologist colleagues. Determine the other professional commitments involved with the role.	Radiology Department	Radiog	C, L, E	Comparative Ethnographic Study	Questionnaires & qualitative thematic approach.	Radiographers (n=22), Radiologists (n=21)	Clinical practice, planning and service development, teaching and education, research and development.	Consultant breast radiographers provide a high quality care to patients through excellent clinical practice, leadership and good communication.
Reeve & May (2009)[73]	To establish the dimensions of quality that were important to patients for an ESP spinal screening service, and to determine if there were any substantial differences compared with previous physiotherapy satisfaction literature.	Out-Patient Orthopaedic Clinic	Phys	C	Qualitative Study	Semi-structured interviews & framework qualitative data analysis.	Musculoskeletal out-patients (n=12)	Dimensions of quality that were important to patients referred to spinal screening service.	Patients wanted information about the whole process of care and the provision of a clear diagnosis and management plan. Key themes were that were important to the participants in the quality of the service: Provision of information, professional skills, interpersonal skills, outcome (provision of a diagnosis and management plan), and patient care pathway.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Robinson (2012)[74]	To understand and analyse the role of the consultant midwife by observing and questioning a number of consultant midwives practising in NHS Trusts across England.	Maternity Ward	Mid	C, E, L, R	Qualitative Case Study Design	In-depth interviews & thematic analysis.	Consultant Midwives (n=8), their heads of maternity services and consultant obstetricians.	Leadership skills and belief in woman centred care, recommendations for further development of the role.	In-depth exploration of the consultant midwife role revealed three dominant themes related to clinical wisdom, taking control and shaping the future. Their impact lay in relation to the way they used their experience, skills and understanding, to undertake complex roles in practice, juggling responsibilities to effect change and improve services for childbearing women and their families.
Rose & Probert (2009)[75]	To evaluate the efficacy of a new extended scope practitioner clinic/new patient pathway.	Occupational Therapy Department	OT	C, E, L	Audit	Data Collection. Patients were selected to attend an ESP clinic audit.	CTS and CMC OA patients (n=100).	Key performance indicators to evaluate ESP effectiveness and improvements in the patient pathway (orthopaedic outpatient clinic waiting list, patient satisfaction).	ESP clinics have the potential to improve the patient pathway by providing earlier access to specialist opinion.
Ryan, Hassel & Thwaites et al (2006)[76]	To identify the perceptions of peers and patients regarding the role and impact of one nurse consultant in rheumatology.	Rheumatology Department	Nurs	C, E, L	Qualitative (emancipatory action research with fourth generation evaluation).	Semi-structured interviews &thematic analysis.	Peers of the NC (n=7), rheumatology patients (n-5), NC (n=1)	Views and perceptions of peers of NC and patients regarding the role of the NC within the rheumatology service.	Key themes were identified: (1) development of a new model of care for patients with chronic musculoskeletal pain; (2) holistic person-centred care experienced and valued by the patient; (3) leadership and education, and, (4) feeling cared for. The NC role has impacted on service development and culture in the instigation of a chronic musculoskeletal pain service and leadership and education activities.

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Ryan, Packham & Dawes et al (2012)[77]	To determine whether a nurse led chronic musculoskeletal pain clinic for fibromyalgia patients can reduce utilization of healthcare services.	Chronic Musculoskeletal Clinic	Nurs	C	Retrospective evaluation.	Data collection. The frequency of the hospital attendance in 5 years before and 3 years after pain clinic attendance was evaluated.	Pain clinic patients (n=60).	Mean number of hospital appointments.	In the three years following attendance at the pain clinic, the mean number of hospital appointments fell significantly from 2.8 to 1.4 per annum ($p<0.001$). A designated clinic for patients with fibromyalgia can reduce the utilization of both primary and secondary health care services.
Salt, Windt & Chesterton et al (2018)[78]	To explore and report findings from a new physiotherapies-led service offering suprascapular nerve blocks to patients with persistent shoulder pain.	Physiotherapy Department	Phys	C	Service Evaluation	Data collection before the SSNB injection and after follow-up (at 6 weeks and 6 month).	Patients (n=48), Physiotherapist (n=1), Anaesthetist (n=1).	Pain and function measures.	Patients with persistent shoulder pain treated by a physiotherapist using palpation-guided SSNBs achieve clinically important changes in pain and function in the short and medium term.
Senevirtatne, Bradbury & Bourne (2017)[79]	To identify the strategies, barriers and challenges to achieving Advanced Level Practice (ALP) by learning from experiences of advanced level critical care pharmacists.	Critical Care Pharmacy	Pharm	C, E, L, R	Qualitative Study	Semi-structured interviews & thematic analysis.	Advanced Level Critical Care Pharmacists (n=8)	The views and experiences of ALP.	Three overarching themes were identified: support, work-based learning and reflective practice. They highlight that increase of the number of MFRPSII (Royal Pharmaceutical Society, Great Britain, Faculty Advanced Stage II) level practitioners within critical care support for their ALP development is required, i.e. face-to-face access to expert critical care pharmacists. Chief pharmacists need to implement in house mentorship and peer review programmes. They need to align job descriptions and appraisals to the Royal Pharmaceutical Society, Great Britain, Advanced Practice Framework (APF).

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Sidhu, Davies & Mcwhirter (2014)[80]	To evaluate the impact of having an ANP.	Outpatients	Nurs	C	Service Evaluation	Data Collection pre- and post-ANP.	Total number of ascitic drains pre-ANP (n=58) post-ANP (n=80)	Total number of drains, length of stay, complication rates, 7 day mortality.	ANP-led service led to an increase in the amount of drains inserted, driven by an increase in elective drains. There is reduced length of stay driven by a reduction in length of stay for non-elective cases. The complication rates are similar but the post ANP employment period showed a lower 7 day mortality. The reduction in length of stay and transfer of emergency to elective cases makes the ANP role financially viable.
Skinner, Skoyles & Redfearn et al (2012)[81]	To evaluate the safety and feasibility of nurse practitioners delivering first-line care on an intensive care unit with all doctors becoming non-resident.	Cardiac Intensive Care Unit	Nurs	C	Before and after evaluation.	Data for the last 12 month period commencing May 2010 were compared with the preceding year.	Nurse Practitioners (n=7).	Mortality rates, surgical trainee attendance in theatre and cost before and after the change.	With adequate training and appropriate support, resident NPs can provide safe, sustainable alternative to traditional staffing models of cardiac intensive care.
Slevin, Barwell & Youde (2013)[82]	To evaluate the role of two ACPs in MAU.	Medical admissions unit (MAU)	Nurs	C	Service Evaluation (before and after introduction of ACP)	Data Collection	Patients allocated to Medicine for the Elderly.	Number of patients discharged from MAU; Length of Stay in hospital.	The new ACP role for older people's care in MAU has improved the number of timely discharges. Prior to their introduction, out of 670 patients allocated to Medicine for the Elderly 1.4% were discharged from MAU, compared to 11% of 679 patients in the corresponding time period the following year. Comparative total Length of Stay in hospital fell from 11 days to 9.4 days.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Smith & Comins (2015)[83]	To establish a change in practice for electron breast boost to be stimulated using virtual simulator by suitably trained radiographers.	Radiology Department	Radiog	C	Service Evaluation	Data Collection and Review (electron boost plans were retrospectively created using the CT planning data)	Breast Cancer Patients who had completed radiotherapy treatment to the breast, including a boost (n=10), Radiographers (n=1)	Assessment of retrospective treatment beams, volumes of the planning target volume (PTV) and delivery of the electron boost.	Radiographer-led planning breast boost service has given them greater autonomy and job satisfaction. This service is a more cost effective use of staff and available resources to deliver improved treatment care improved treatment delivery and to reduce the overall number of patients' appointments.
Snaith, Clarke & Coates et al (2019)[84]	To examine the activities undertaken by consultant radiographers; evidence the impact of the roles, and consider whether the roles encompass the four domains of consultant practice.	Radiology Department	Radiog	C, E, L, R	Descriptive Cross-sectional Study	Data Collection (activity diary by consultant radiographers).	Consultant Radiographers (n=6).	Activities and the breadth of the four core functions were documented.	Consultant radiographers are delivering the leadership expectations of the role, contributing significantly to service delivery and capacity generation as was expected by the initial strategy. The impact of the roles stretched beyond the local department and organisation to the health care system and wider profession.
Snaith, Milner & Harris (2016)[85]	To review the contribution of advanced (and consultant) practitioner radiographers to service delivery whilst reporting radiographs and demonstrates the impact this has on patients and staff, both internal and external to the imaging department.	Radiology Department	Radiog	C	Prospective exploratory study	Data Collection. Activity diaries to allow interval sampling.	Advanced Radiographer Practitioner (n=11) & Consultant Radiographers (n=2).	Activities performed: reporting (by author and referral type), direct patient care, advice, supplementary tasks & other. Reporting 'relative hours', radiographer reporting costs.	Activities performed by advanced practice radiographers are complex. Total number of coded activities recorded over the study period was 1527, equating to 380.5 relative hours. Majority of available time was spent reporting. Direct patient care tasks and support for staff in decision making were also documented throughout the study. The findings confirm their role in supporting service delivery beyond image interpretation.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Tan, Menon & Black (2017)[86]	To assess a nurse-led clinic it's positive impact on patients and medical staff.	Gastroenterology Department	Nurs	C, E, L	Qualitative Evaluation.	Interviews and surveys to determine the impact of the service.	Specialist Nurses (n=3) and patients (n=53).	Feedback from patients and colleagues on their experiences of the service.	A nurse-led clinic has made a significant impact to both patient experience and the standard nursing role.
Taylor, Gibson & Taylor et al (2018)[87]	To develop an improved method of delivering care which reduces hospital attendance and enriches quality of life.	Chemotherapy Department	Nurs	C	Service Evaluation.	Patient & family survey. Clinic attendance records.	Patients (n=12)	Satisfaction of the service by patients and their families. (School attendance, disruption to work). Hospital attendance.	High level of satisfaction. Hospital attendance reduced from weekly to monthly visits. Working collaboratively to change traditional outpatient care has delivered a patient and family-centred approach. This service has improved their attendance at school and parents reported minimised disruption to work and family life.
Thompson & Ramsden (2014)[88]	To investigate whether a radiographer could provide a safe and diagnostic Paediatric Videofluoroscopy (VF) service in conjunction with the speech and language therapy (SALT) team.	Paediatrics Radiology Department	Radiog	C	Service Evaluation	Data Collection	VF examinations in children (n=50)	VF examinations divided into 168 swallowing episodes and the radiographer's and radiologists' reports were compared. The data were collected on score sheets, which categorised swallowing as normal or delayed, with further comment made upon aspiration, airway penetration and nasopharyngeal regurgitation.	Radiographers can run a safe diagnostic VF service in conjunction with the SALT team. The average radiation dose administered by the radiographer fell well within local diagnostic reference levels. The radiographer did not miss any aspiration, and achieved 98% congruence for both airway penetration and nasopharyngeal regurgitation. Congruence for a delayed swallow was 73%.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Tsang, Shoffern & Kudhall (2018)[89]	To demonstrate how a single institution integrates Radiation therapists (RTT) advanced practice into routine radical breast cancer patient pathways and its relative impact on the radiotherapy (RT) service.	Radiotherapy	Radiog	C	Retrospective Review of radical breast radiotherapy patients records (before and after implementing the intervention) to determine the interval between decision to treat and the first RT planning date	Data Collection & Mann Whitney U test.	Breast RT Patients (n=561)	The time periods before and after implementing the RTT led services. Interval between decision to treat and the first RT planning date (INT), Mean INT (days), Intervals for Mean INT (days).	Intervals between decisions to treat and the RTT planning dates of RT patients has been shortened since the RTT led services were implemented.
Turk & Johansen (2010)[90]	To describe the evaluation of Pharmacist Independent Prescribing to trauma inpatients admitted following a fragility fracture.	Trauma inpatients	Pharm	C	Service Evaluation	Data Collection	Trauma inpatients admitted following a fall (n=133)	Patient demographics, fracture(s) sustained, previous treatments, previous fractures, and treatment prescribed by the Pharmacist IP.	Pharmacist IPs caring for all inpatient fractures will increase the proportion of inpatients offered appropriate osteoporosis treatments as per NICE guidance.
Wallymahmed, Morgan & Gill et al (2011)[91]	To compare the effects of a dedicated cardiovascular risk factor clinic run by a nurse consultant with routine diabetes clinic attendance in achieving glycaemic and cardiovascular risk targets in patients with Type 1 diabetes.	Diabetes Clinic	Nurs	C	RCT	Routine care (control) vs intensive nurse-led cardiovascular risk factor intervention (intervention). Patients were randomised.	Patients with diabetes type 1 (n=81).	Differences between the nurse-led cardiovascular risk factor and control group at baseline, at 12 and 34 months. Main outcomes include: HbA1c, total cholesterol, systolic blood pressure and diastolic blood pressure.	A nurse consultant cardiovascular risk factor clinic has a beneficial effect on cardiovascular risk targets in Type 1 diabetes, probably attributable to the increased use of lipid-lowering and anti-hypertensive agents and this was maintained at 24 months. Glycaemic control also improved.
Walumbe (2017)[92]	To describe the role of an Advanced Physiotherapy Practitioner (APP) working	Acute Hospital	Phys	C	Service Evaluation	Data Collection & questionnaire.	Complex Pain Team (Physiotherapy	Unique skills of APP, clinical & economic outcomes,	The role provides opportunities for strategic leadership, models integrated care, and

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
	with people with complex persistent pain in acute hospital, outpatient and community settings; to describe relevant physiotherapy skills required in these settings; to describe the clinical outcomes of the service.						Practitioner (APP), Clinical Psychologists, a Clinical Nurse Specialist (CNS) and Pain Consultants), patients with complex pain.	quality of life of patients.	was facilitated by advanced practice skills in independent prescribing, procedure listing and imaging.
Williams, Bowron & Morris et al (2010)[93]	To establish the impact of a pharmacist independent prescriber on metabolic targets of Type 2 diabetes patients attending a hospital clinic.	Type 2 Diabetes Clinic	Pharm	C	Service Evaluation	Data Collection	Patients with Type 2 Diabetes (n=100)	Metabolic parameters were collected for the both the primary and follow up clinic visit.	Pharmacist independent prescriber was equivalent to medical prescribers at lowering metabolic parameters, which have been shown to reduce the risk of complications of diabetes.
Williamson, Twelvetree & Thompson et al (2012)[94]	To examine the role of ward-based Advanced Nurse Practitioners and their impact on patient care and nursing practice.	Acute Medical Wards	Nurs	C	Qualitative Study (using ethnographic approach)	Data collection, formal and informal interviews.	ANPs (n=5), patients (n=5), ward nurses (n =14)	Participant observation and interviews of ward-based ANPs.	Sub-themes included enhancing communication and practice, acting as a role model, facilitating the patients' journey and pioneering the role. Ward-based Advanced Nurse Practitioners are necessary for providing quality holistic patient care and their role can be defined as more than junior doctor substitutes.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Woods (2006)[95]	Is the quality of care and clinical outcomes for premature birth babies affected by the type of practitioner (i.e. nurse practitioner vs. medical practitioner) responsible for the initial assessment, treatment and management of neonates during the first 6–12 hours following admission to a neonatal intensive care unit?	Neonatal Unit	Nurs	C	Mixed method approach combining a retrospective examination and quality assessment of nursing and medical records.	A random sample of 61 sets of medical records, relating specifically to the initial management and treatment of neonates were criterion assessed by an experienced consultant neonatologist and a variety of patient outcome data collated and analysed	Medical practitioners (n=45) and ANNPs (n=16).	Clinical outcomes of premature birth babies assessed by ANNPs. Quality assessment of nursing and medical records. Demographic and admission data for neonates. Mean physiological measures recorded on admission and at 24 hours.	Neonatal nurse practitioners provide an alternative model of service delivery in the initial admission and management of premature birth babies. ANNPs do not perform as well as medical staff, in the majority of cases, but they still performed to an acceptable standard.
Woznitza, Piper & Burk et al (2014)[96]	To examine the adult chest radiograph (CXR) reporting performance of a reporting radiographer in clinical practice using different audit systems; single radiologist and two radiologists, with clinical review of discordant cases.	Radiology Department	Radiog	C	Audit (mirrored on a case controlled design)	Random review of CXR (n=100)	Radiographer (n=1), Radiologists (n=2).	Diagnostic outcomes, radiographer-radiologist concordance rates, independent clinical review of discordant cases.	Multidisciplinary review is a good learning environment for the reporting radiographer. Consensus was found with the radiographers report in 59 normal and 33 abnormal CXRs reviewed by two radiologists (96.7% and 86.8% respectively).
Woznita, Piper & Burke et al (2018)[97]	To investigate the diagnostic accuracy of CXR interpretation by reporting radiographers.	Radiology Department	Radiog	C	Prospective Audit (quasi-experimental)	Review of adult CXRs with different pathologies (n=106)	Consultant radiologists (n=10) reported n=106 CXR, reporting radiographers (n=11) reported n=120 CXR.	Diagnostic outcomes.	With appropriate postgraduate education, reporting radiographers are able to interpret CXRs at a level comparable to consultant radiologists.
Woznita, Piper, Burke et al (2018) [98]	To compare the clinical chest radiograph (CXR) reports provided by consultant radiologists and reporting radiographers with expert thoracic radiologists. The purpose of the study was to establish an image bank with a robust reference standard diagnosis to examine diagnostic	Radiology Department	Radiog	C	Retrospective study, mirroring a case-control design	Review of 193 CXRs	2 radiograpgers; compared with 8 consultant radiologists (and 2 consultant radiologists arbiters)	Diagnostic accuracy; Concordance between radiographers and radiologists	CXR reporting performance, and by inference patient safety, is maintained with radiographer CXR in clinical practice.

Author & Year	Focus & Aims (NR=not reported)	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
	accuracy								
Woznita, Piper & Rowe et al (2018)[99]	To investigate the feasibility of radiographer-led immediate reporting of chest radiographs (CXRs) referred from general practice.	Radiology Department	Radiog	C	Service evaluation, Feasibility study	Review of CXRs.	Consultant Radiographer n=1 & Consultant Radiologist..	Diagnostic outcomes CXR reports, secondary outcomes were the number of lung cancers diagnosed, the time to diagnosis of lung cancer (including intermediate time points; time to CT, time to diagnostic multidisciplinary team [MDT]), and the number of urgent referrals to respiratory medicine. All timing (time to CT, time to diagnostic MDT)was measured in days, including weekends, not working days.	It is feasible to introduce a radiographer-led immediate CXR reporting service. Patients can be taken off the lung cancer pathway sooner with the introduction of radiographer immediate reporting of CXRs and this may improve outcomes for patients.

Primary Care Sector

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Akehurst, Bmaford & Brooks (2019)[100]	Evaluate the impact of a specialist led back pain service in a primary care run by an advanced practice physiotherapist working as a first contact practitioner	General practice	Phys	C	Service evaluation (retrospective, descriptive)	Review of cases seen by ACP	NR	Referral rates, patient satisfaction, cost saving	APP first contact practitioners working in primary care reduce secondary care referrals, investigations and subsequent follow-up appointments resulting in a total cost saving of £51.04 (51%) per patient per episode of back pain with excellent patient satisfaction.
Allan, Dekka & Brown (2017)[101]	To evaluate the clinical effectiveness of community MSK spinal triage service	Community MSK Spinal Triage Service	Phys	C	Service evaluation (prospective audit - quantitative/qualitative)	Evaluation of referrals to secondary care for spinal patients 6 months prior ACP service compared to referrals in 6 months of ACP service provision, plus patient satisfaction	MSK spinal patients	Number of referrals to secondary care, investigations requested, conversion rates, cost analysis & patient satisfaction	Advanced practice in a community setting can reduce overall cost of care while providing safe and effective care.
Anderson (2017)[102]	To explore the relationship between professional identity & ANP practice in the context where ANP practice was established	General practice	Nurs	C & L	Qualitative (ethnography)	Semi-structured interviews, website content analysis & observations	Observation: interactions between 8 ANPs and other practice staff. Interviews: 8 ANPs	Professional identity, hierarchy and power, levels of identity and layers of trust, and negotiating professional relationships	Trust in ANPs by GPs and managers is built in complex layers, underpinned and influenced by past experiences and preconceptions of professional healthcare identities and hierarchies. ANPs felt a level of vulnerability and mistrust by their current employers even when they receive support from their GPS and managers which was mediated by a feeling that the support received is subject to performance. The dual role of GPs as practice owners and clinical leaders impacted on the power relations and hierarchies. ANP did not have access to the highest level of practice and decision-making and their professional identity was closely linked with the mainstream perception of nursing. ANPs relied on their previous experience of working with doctors and managers, and the political knowledge to negotiate

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									professional relationships. They executed their advanced roles in a way underpinned by the professional stereotypes of nursing and its position within the professional healthcare hierarchy, rather than challenge it.
Anderson, Birks, Adamson et al. (2019)[103]	To consider the relationship between professional nursing identity and advanced practice by exploring intra-professional relationships between ANPs & nursing colleagues within general practices	General practice	Nurs	NA	Qualitative (ethnography)	qualitative interviews & observations	ANPs (n=9) and Practice nurses (n=5)	Identity negotiation and intra-professional relationships	ANP take responsibility for developing positive relationships with other nurses (Conciliating Nursing), knowing other nurses hold negative views of advanced practice, which may lead to negative behaviours (Vertical Discounting). However, ANPs also hold negative views of other ANPs (Othering)
Barratt & Thomas (2018)[104]	Advance understanding of the discrete nature of the consultation of the communication processes and social interactions in the nurse practitioner consultations	Walk-in clinic	Nurs	C	Qualitative	Semi-structured interviews	9 patients, 2 patient carers, 3 NPs	Consultation styles of NPs, NP-GP comparisons, lifeworld content, NP role ambiguity, creating impression of time and expectations for safety netting	NPs employed a 2-way conversation, used personal and everyday lifeworld communication styles and verbalised their cognitive clinical reasoning to the patients and carers. Patients/carers perceived this consulting style as facilitating opportunities for their active participation and felt their concerns were being directly addressed. There was a perceived ambiguity of the nature of the NP role amongst patients/careers.
Barratt & Thomas (2018)[105]	Explore the influence of pre-consultation expectations, and consultation time length durations on patient satisfaction and enablement in nurse practitioner consultations	Walk-in clinic	Nurs	C	Survey	Questionnaire	71 patients	Pre-consultation expectations, post-consultation satisfaction and patient enablement	Accurate patient expectations of NP consultations boost patient satisfaction and enablement. Higher levels of patient enablement and satisfaction are not necessarily determined by the time lengths of consultation, and how consultations are conducted may be more important than their time lengths for optimising patient satisfaction and enablement.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Barratt & Thomas (2018)[106]	Determine the discrete nature of social interactions occurring in NP consultations and to investigate the relationship between consultation social interaction styles and the outcomes of patient satisfaction, patient enablement & consultation length of time	General practice	Nurs	C	Mixed methods (case study)	video-recorded consultation observations and patient survey	30 patients consultations observed. Patient survey = 26	NP-patient interactions styles, patient satisfaction, patient enablement & length of consultations	NP-patient interactions styles significantly patient-centred communication styles. Style did not significantly extend consultation time length & style was not associated with increased level of patient satisfaction or enablement
Barratt (2005)[107]	Explore the patient self-representational aspects of social interactions during nurse practitioner consultations in primary health care	Walk-in clinic	Nurs	C	Qualitative	Observations & semi-structured interviews	Observation: 15 nurse-patient consultations. Interviews: 15 NPs	Styles of patient self-presentation - seekers, clinical presenters, confirmers, seekers to confirmers, anticipators	NPs were able to flexibly modify their consultation communication strategies in response to patient self-representation style, helping to resolve tension existing between patient expressed reasons for consultation attended and their actual clinically assessed need for treatment. NP need to have an adaptable approach to their consultation interactions with patients, and be mindful of some patients' apparent preference for discussion of everyday life issues in conjunction with objective medical information to ensure satisfactory outcomes to their consultations.
Barrett & MacKenzie (2017)[108]	To determine if integrated community teams with AHPs with advanced skills can have an impact on reducing admissions from an ED	Integrated Community Response Service (a commissioned care pathway having a presence in a local ED)	Phys	C	Service evaluation (retrospective audit - MM)	Clinical notes of 192 patients assessed by ICRS & qualitative descriptions of key cases	192 patients	number discharged, post-discharge follow-up, ED re-attendance, beds and cost saved	The APP are able to work autonomously and collaboratively at the front door of EDs & can contribute to assessing and preventing admissions for suitable patients.

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Bond, Bruhn, Blyth et al. (2011)[109]	To report patients, GPs and pharmacists experiences of a pharmacist-led management of chronic pain in primary care	General practice	Pharm	C	Mixed methods (cross-sectional and qualitative interviewing	Patient survey & semi-structured interviews with GPs & pharmacists	196 patients, 6 pharmacists & 23 GPs	Participants experiences of service	Patients, pharmacists & GPs were very positive about pharmacist-led management of chronic pain.
Bond, Lane, Poland et al. (2016)[110]	To determine GPs views on the utility and acceptability of pharmacist independent prescribers assuming responsibility for medicines management within care homes and how best to implement and deliver such a service	Care homes	Pharm	C	Qualitative	Focus groups with GPs	28 GPs	Participants perceptions & views on the utility and acceptability of PIPs in care homes	Proposed service broadly welcomed by GPs. Broad enthusiasm for management of repeat prescriptions & medication review. Concerns were raised regarding PIPs initiating medicines, confidence, governance, professional indemnity and PIPs knowledge of older people's medicines. GPs wanted reassurance that their workload would not increase. They preferred PIP to be based in practice rather than care homes.
Bond, Maskrey, Alldred et al. (2017)[111]	To develop and deliver a cluster randomised controlled trial to asses the effectiveness & cost effectiveness of pharmacist independent prescribers assuming responsibility for medicines management within care homes compared to usual care	Care homes	Pharm	C	Mixed methods (pre-post interventional study & qualitative process evaluation of intervention)	pre-test - post-test, individual interviews and focus groups. Intervention: Introduction of a pharmacist independent prescriber role to cover medication review, prescribing, training & support & communication in care homes	40 residents in care homes across 4 sites involved in RCT. Number of participants involved in the interviews and focus groups not reported but involved GPs, PIPs, care home managers, care home staff & residents and their families	Health status outcomes - falls, drug burden index, mini-mental state examination & proxy EQ-5D; stakeholders' experiences	Positive impact on health status of trial participants. Participants interviewed were very positive about the intervention. PIPs raised concerns about the pharmaceutical care plans used, challenges in meeting GPs and care home staff due to service pressures & time insufficiency.
Boyd, Mann, Anderson et al. (2019)[112]	To investigate the impact of clinical pharmacists in GP on pharmacists' general practices and patients	General practice	Pharm	C	Service evaluation (quantitative and qualitative)	Online survey and ethnographic case study (interviews and focus groups) of 8 sites	Survey: 159 pharmacists. Interviews with pharmacists, site leads & GPs, & focus groups with patients. Number of participants involved in the	Pharmacists' experiences, GPs' perceptions & Patients' satisfaction	Clinical pharmacists had significant impact on the pharmacists, general practices and patients. Pharmacists felt valued, increased GP appointment capacities, & patients were satisfied with role.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
							interviews & focus groups not stated.		
Bradley, Seston, Manall et al. (2018)[113]	To provide the first national insight into the role evolution and integration of clinical pharmacists in general practice in England	General practice	Pharm	C, E	Mixed methods (survey & qualitative interviews). Article reported data from the survey	Clinical pharmacists survey & qualitative interviews with clinical pharmacists, GP supervisors and education supervisors	Survey 211 pharmacists registered on the GP Pharmacist Training Pathway (GPPTP). Survey 236 pharmacists registered on GPPTP pharmacists. Article reported data related to the survey	Change in knowledge, skills and competency; scope of practice; integration into practice; & practice environment & support	Significant increase in scope of practice and perceived competency levels of clinical pharmacists. Issues around pharmacists' practice environment & lack of clinical support from GPs highlighted. Pharmacists felt practice need to be realistic about GP support and not expect an immediate reduction in workload.
Bruhn, Bond, Elliot et al. (2011)[114]	To test the hypothesis that pharmacist medication review, with or without prescribing will lead to better patient functioning and/or better pain control than standard care	General practice	Pharm	C	Mixed methods (RCT & qualitative process evaluation of intervention)	2 intervention groups: pharmacist medication review with feedback to GP & pharmacist medication review with ongoing pharmacist prescribing. 1 control group: Usual GP-led care. Semi-structured interviews.	231 patients with chronic pain involved in RCT. Qualitative interviews with GPs & practice pharmacists. Number not specified	Health status outcomes - Chronic Pain Grade (CPG) scale, health-related quality of life (SF-12). GP and pharmacists' perceptions of intervention	Greater improvement in patients' pain levels and quality of life. Pharmacists were positive about the intervention. There was some ambivalent amongst GPs.
Bruhn, Bond, Elliot et al. (2013)[115]	Compare the effectiveness of pharmacist medication review, with or without pharmacist prescribing, with standard care for patients with cronic pain	General practice	Pharm	C	RCT (& qualitative process evaluation of intervention)	3 groups: pharmacist medication review with face-to-face pharmacist prescribing; pharmacist medication review with feedback to GP; & usual GP-led care. Semi-structured	70 allocated to pharmacist medication review with face-to-face pharmacist prescribing; 63 to pharmacist medication review with	Health status - pain, anxiety and depression, and physical and mental functioning. Acceptability of intervention among patients, pharmacists and GPs	Pharmacist reviewing and prescribing improved pain-related outcomes and be acceptable to both patients and most professionals. There was an indication of a positive effect on emotional health, but no measurable effect on general health.

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						interviews with pharmacists & GPs	feedback to GP & 63 to usual GP-led care. Interviews with 6 pharmacists & 23 GPs		
Bush, Langley, Jenkins et al. (2018)[116]	Characterise the breath and volume of activity conducted by clinical pharmacist in general practice in a Clinical Commissioning Group, and to provide estimates of the savings in GP time and the financial savings attributable to the service	General practice	Pharm	C	Service evaluation (retrospective, descriptive)	Review of interventions/activities provided by 23 PBP	23,172 interventions	Interventions provided by PBPs and cost saving impact	Clinical pharmacists in general practice are able to deliver clinical interventions efficiently & in high volume. They were able to generate considerable financial returns on investment.
Caine & Wynne (2016)[117]	Can advanced practitioner physiotherapists help relieve the burden of MSK conditions in primary care?	General practice	Phys	C	Service evaluation (prospective, descriptive, survey)	Review of cases seen by APP & patient survey	NR	Referral rates, appropriateness of referrals, DNA rates, GP support, patient satisfaction	There was significant uptake of the service by patients, reducing the workload in both primary and secondary care. APP negates the need for the GP to have any input into MSK cases.
Collins (2019)[118]	Measure the effectiveness of advanced nurse practitioners against quality requirements for out-of-hours care, compare ANP effectiveness with that of doctors working in the same service, and evaluate the impact of ANPs on the service	Out-of-hours	Nurs	C	Service evaluation (retrospective/descriptive, qualitative)	Review of medical records, semi-structured interviews & focus groups	Analysis of 1,539 ANP home visit patient electronic case notes. Focus group: 8 GPs. Interviews: 6 ANPs	Effectiveness (patient health outcomes, referral rates, prescription patterns). Efficiency (number of home visits and duration of each visit)	ANPs can provide equivalent clinical outcomes to GPs when undertaking urgent home visits OOH and are practising safely and effectively in the role. ANPs provide an effective and stable workforce, with a positive effect on service, particularly when working alongside GPs as part of a team.
Cousins & Donnell (2012)[119]	To investigate the impact of independent prescribing for experienced nurse practitioners working in general practice	General practice	Nurs	C	Qualitative	Semi-structured interviews & observations	6 NPs	NPs' experiences - job satisfaction & work-related stress	Increase job satisfaction in terms of increased job control, greater autonomy and more holistic care. Role associated with work-related stress including increased job demands, support issues and lack of recognition/reward.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Crumbie (2005)[120]	Determine the extent nurse practitioners share the values of nursing and medicine	Primary Care Trust	Nurs	C	Qualitative (auto-ethnography)	Semi-structured interviews	6 NPs, 6 GPs and 6 District nurses	Discourse with the self, others and society (personal and professional development, clinical competency, relationship with colleagues and patients, contribution to the development of the profession)	NPs share some of the values of the nursing and some of the values of medicine and yet they also seemed to value personal and professional development more. While medical doctors valued illness and disease, and the district nurses valued patients and families, the NP valued their own development and personal achievements. There was a lack of purpose and goals in the NPs narratives.
Donnelly, Hughes, Harper et al. (2010)[121]	To investigate the feasibility of extending a Type 2 diabetes cardiovascular risk clinic, run by an independent prescribing pharmacist, to primary care	General practice	Pharm	C	non-randomised controlled interventional study plus survey/qualitative process evaluation of the intervention	2 control sites (no diabetes cardiovascular risk clinic run by an independent pharmacist prescriber) and 2 interventional sites (a diabetes cardiovascular risk clinic run by an independent pharmacist prescriber). Patient questionnaires and semi-structured interviews	87 patients	Primary outcomes: blood pressure control and cholesterol profile. Secondary outcomes: diabetes self-care activities, self-reported adherence with medicines, patients' and GPs' views on pharmacist prescribing and multidisciplinary approach to the management of Type 2 diabetes in primary care	Independent pharmacist prescriber can successfully run a diabetes cardiovascular risk clinic in primary care. Intervention patients and GP were supportive of the pharmacist-run clinic and the concept of extending prescribing rights to pharmacists.
Downie, McRitchie, Monteith et al. (2019)[122]	Evaluate a ESP new service	General practice	Phys	C	Service evaluation (prospective, descriptive)	Review of cases seen by ESP	NR	Patient contact outcomes; referral rates (GP and secondary care); support from GP; patient experience	Patients with MSK conditions may be assessed and managed independently and effectively by physiotherapists instead of GPs. This has the potential to significantly reduce workload for GPs as the service requires minimal GP support. The majority of patients were managed within the primary care, with low referral rates and highly appropriate referrals to orthopaedics. Patients reported positive views regarding the service.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Edwards, Bobb & Robinson (2009)[123]	Explore the feasibility and clinical management outcomes of nurse practitioner management of same-day requests, including those requiring home visits, to inform a proposed RCT	General practice	Nurs	C	Service evaluation (audit and survey)	Analysis of recorded patient consultation with a NP vs GP. Questionnaire for patients and practice staff	468 recorded consultations from 455 patients (311 with NPs & 257 with GPs). 568 patients questionnaires (returned 122) & 29 practice staff questionnaires (returned 16)	Clinical outcomes (prescriptions, therapy & investigations' referrals, hospital admissions, patient enablement & quality of communication/relationship) and patient and staff satisfaction	Extending NP management to include in-hours home visits potentially offers a practical and feasible means of freeing up GP time for surgery work, while simultaneously removing a source of occupational GP stress.
Furness, Jose & Phillips-German (2019)[124]	To evaluate the impact of an advanced paediatric nurse practitioner in primary care on primary care referral patterns to secondary care	General practice	Nurs	C	Service evaluation (descriptive)	Evaluation of acute and outpatient referrals a year before and after the APNP role	1 APNP	Acute and outpatient referral rates	The introduction of APNP reduced outpatient and total referrals after one year.
Gerard, Tinelli, Latter et al. (2012)[125]	To explore the difference in patients' preferences for prescribing services, predict the update of prescribing pharmacist services, and assess impact on quality improvement	General practice	Pharm	C	Service evaluation (survey)	Questionnaires	451 patients	Patient preference between consulting with own GP, an available GP or pharmacist prescriber	The pharmacist service is valued by patients as an alternative to doctor prescribing in primary care & therefore represents an acceptable form of service delivery.
Gladman & Chikura (2011)[126]	To describe experiences of using advanced nurse practitioners with expertise in gerontology in care homes	Care homes	Nurs	C	Service evaluation (retrospective, descriptive & cost analysis)	Service description & cost analysis	ACP role at 4 primary care sites	Cost of ACP service & number of hospital admissions & GP visits prevented	ANPs in care homes could lead to cost savings through reduction in health service use. Roles were associated with insignificant harm, & valuable health gains among residents.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Goodwin & Hendrick (2016)[127]	Evaluate the clinical effectiveness, patient satisfaction and economic efficiency of first contact physiotherapy (FCP) service for patients with MSK complaints in general practice	General practice	Phys	C	Service evaluation (retrospective, descriptive & survey)	Review of cases seen by FCP & patient questionnaires	8417 cases & 45 patients	Safety and governance; resource utilisation (GP referral, secondary care referral, follow-up appointments); clinical outcomes (change in health status); patient satisfaction; cost	FCP service appears to provide safe and efficacious service. The service is well received by patients and there appears to be potential financial implications to the health economy. Physiotherapists as first point of contact for patients with MSK-related complaints could contribute to the current challenges faced in primary care.
Griffiths, Taylor & Yohannes (2012)[128]	Investigate primary care extended scope physiotherapist conversion rates and their perceived barriers when referring patients with MSK problems to secondary care	Participants recruited through ESP Professional Network	Phys	C	Service evaluation (survey)	Electronic questionnaire	100 extended scope physiotherapists who are members of the Chartered Society of Physiotherapy Professional Network	Conversion rate, barriers to referral, referral criteria	ESPs in primary care reported similar conversation rates to those working in secondary care. There is the need for empirical conversation studies in primary care to validate these self-reported findings to enable ESPs demonstrate clinical efficiency and benchmark their performance. Only 38% of ESPs reported barriers when referring patients for a secondary care opinion. Half of primary care ESPs identified that they used referral criteria to guide their referrals, which may correlate with their higher conversion rates.
Haidar (2008)[129]	To assess patient satisfaction with the ANP role	General practice	Nurs	C	Survey (prospective)	Questionnaires	55 patients	Patient satisfaction with ANP role, particularly in the areas of communication, advanced assessment, partnership in consultation & preference to be seen by an ANP	Patients are satisfied with service provided by the ANP.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Hall (2016)[130]	Explore the role and value of nurse practitioners to general practice from the perspectives of nurses working in these advanced roles	General practice	Nurs	C	Qualitative (interpretive)	Semi-structured interviews	10 NPs	Nuts and bolts of NP role, negotiating professional relationships, the nurse practitioner consultation and the general practitioner appointment.	There is value in the roles of individual NPs, value in the domain of role, practice, patient and team. Uncovering generic value of advanced level practice is difficult but there is value in the multi-layering of advanced roles. Whilst credentialing will distinguish nurses working at higher level, it will offer nothing for nurses providing much needed services but who don't have the qualifications or training to be recognised as ANPs. Credentialing will not resolve the confusion of role tiles. As there is no political willpower for regulation and nursing does not have the political strength to make it happen, nurses in general practice will continue to use whichever title they prefer - specialist practitioner, NP or ANP. Maximising the effectiveness of the voluntary credentialing process that is currently being developed by the RCN offers the greatest potential for progressing and legitimising advanced practice.
Hensman-Cook (2017)[131]	NR	General practice	Phys	C	Service evaluation (retrospective, descriptive)	Review of 2361 cases seen by ACP	MSK patients	Source of referral, GP capacity, conversion rate to surgery, assessment outcomes, investigations, injections, prescribing and patient satisfaction	Advanced physiotherapy role shown to provide a cost effective, efficient and popular role in primary care. It benefitted secondary care by reducing referrals, helping throughput, improving relevant referral gaining conversion rate to surgery. It improved GP capacity and generated income from injections. It reduced investigations for MSK conditions, reduced prescription costs, and provided an easily accessible, highly specialised MSK service for patients close to home.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Hill, Marr & Smith (2019)[132]	To introduce addiction-based pharmacist independent prescribers into an GP practice to see if a difference could be made	General practice	Pharm	C	Service evaluation (retrospective, descriptive)	Medical review of 265 patients' clinical records, patient pain diaries, surgery prescribing	265 patients, 2 pharmacist independent prescribers	reductions in opioid medications, physiotherapy and other referrals, other therapy initiation (anti-depressants and analgesics)	There was a reduction in prescribing with patient satisfaction not compromised.
Horne, Slade & Evans (2019)[133]	Describe the transformation of a musculoskeletal service to FCP model and share experience in terms of success and challenges	General practice	Phys	C	Service evaluation (retrospective, descriptive)	Review of cases seen by FCP	NR	Cost savings, referral rates, DNA rates, & patient satisfaction	A FCP model saves money, reduces unnecessary investigations and referrals into secondary care, whilst still maintaining a high conversion rates into surgery. It has a positive impact on physiotherapy waiting times and provides patients with self-management advice and education quicker. It provides a service with high patient satisfaction feedback.
Inch, Notman, Bond et al. (2019)[134]	To test and refine the service specification and proposed study processes to inform the design and outcome measures of a definitive randomised cluster controlled trial	Care homes	Pharm	C	Non-randomised open feasibility study (mixed methods)	Review of routine data, questionnaires, focus groups, semi-structured interviews	40 residents (10 per UK country) from care homes where the ACP role was introduced, 6 interviews with each care home manager and GPs, 10 interviews with care home staff, two interviews with residents, three interviews with relatives and 1 interview with a dietician.	falls, medications, residents' quality of life and activities of daily living, mental state and adverse events	Role was associated with improved patient care, improved patient safety, and saved staff time and effort.
Ingram, Pickup, Acton et al. (2019)[135]	Evaluate First Contact MSK Practitioner role within a primary care	General practice	Phys	C	Service evaluation (retrospective, descriptive)	Review of cases seen by FCP	3287 cases	Referral rates, patient satisfaction, accessibility/waiting time	FCP is clinically effective in independently triaging and managing MSK conditions in a prompt manner

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
	setting								with excellent patient satisfaction. The role reduces demand on GPs, and reduce referrals to intermediate and secondary care services.
Leask & Tennant (2019)[136]	To evaluate the feasibility of utilising an ANP to deliver unscheduled home visits on behalf of GPs in the primary care setting	General practice	Nurs	C	Service evaluation (descriptive & mind-mapping process)	Review of 239 home visits & mind mapping process to capture ANPs & GPs experiences of service	15 ANPs, 12 GPs/GP trainees	Patient facing time, outcomes of visits, & staff perception of service	Delivery of unscheduled care provision using an ANP is feasible and acceptable to GPs.
Main, Dunn & Kendall (2007)[137]	Explore how health professionals perceive the current and potential role of nurse practitioners in primary care	Primary Care Trust (General Medical Services, Personal Medical Services, and walk-in centres)	Nurs	C	Qualitative	Semi-structured interviews	8 NPs, 10 GPs, 1 Practice nurse and 2 managers	Organisational factors, training and prescribing issues, lack of professional register, and tension, boundaries and responsibility	There are considerable barriers to the development and integration of the NP role in primary care. Both practical and cultural issues need to be addressed in order to enable a long-term sustainability of the NP role in primary care. The boundary between medicine and nursing is the great source of tension and change.
Mann, Anderson, Avery et al. (2018)[138]	Do community pharmacist independent prescribers play a positive role in general practice and have a positive impact at all levels - on patients, practice and the NHS?	General practice	Pharm	C	Service evaluation (retrospective, descriptive & ethnography)	Review of cases seen by pharmacist, observation of patient-pharmacist consultations, semi-structured interviews with primary care staff & patients	13, 000 cases, 45 patient-pharmacist consultations, interviews with 18 practice staff & 33 patients	Impact on GP capacity, patient-centred outcomes (medication adherence, satisfaction, safety), quality of care, and implementation issues.	CPIP service - medication review, handling prescription queries/appointments, discharge management , acute care consultation - released capacity from GP. Positive impact on patient medication knowledge and adherence, and patient safety. Patients were satisfied with the service

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Mannall, Bradley, Seston et al. (2019)[139]	To capture data about activities performed, level of patient-facing work and perceived impact of the role on GP workload and patient care	General practice	Pharm	C	Survey (retrospective, descriptive)	Online questionnaire	413 clinical pharmacists (response rate 44%)	Activities performed by ACPs, level of patient-facing work & perceived impact on GP workload	Implementation of the GP clinical pharmacist role is perceived by those delivering the role to have led to an improvement in patient care through the implementation of safer systems and process. Many activities performed are directly patient-facing. Activities cited to be saving GP time are reportedly more clinical administration focused, which could impact on the potential for the role to deliver patient approval and pharmacist job satisfaction.
McMurray (2011)[140]	To examine the struggles of a group of ANPs to be recognised as a profession by considering the ways in which claims to licence, place and mandate are employed to negotiate new occupational spaces	General practice	Nurs	C, E & L	Qualitative (ethnography)	Observations & semi-structured interviews with ANPs, GPs, practice nurses, GP trainees and administrative staff	3 ANPs & 6 GPs	Professionalising experiences of ANPs: new licence, place to practice, challenging mandate, ordinal switching	The processes by which ANPs have prosecuted their professionalizing claims were characterised by individual struggle for licence coupled with the need for a collective defence of the veracity of occupational mandate.
Moffatt, Goodwin & Hendrick (2018)[141]	Explore other professionals and practice staff involved in the delivery of an in-practice physiotherapist self-referral scheme perception of value, barriers and impact	General practice	Phys	C	Qualitative	Semi-structured interviews & focus groups	Individual interviews: 2 Band 7 physiotherapists. Focus groups: 6 reception/administrative staff, 4 GPs and 1 practice nurse	Impact on cultural change and working practice, and perceived expertise of physiotherapists	A change in culture - managing patient expectation with particular reference to the belief that GPs represent the 'legitimate choice', re-visioning contemporary primary care as a genuine team approach, and the physiotherapists' reconceptualization of their role and practices - is essential for all primary care staff if physiotherapy-as-first-point-of-contact-service (PFPCS) for MSK patients is to deemed as a rational choice by patients. Beliefs regarding physiotherapists' ability to work autonomously or identify 'red flag' were unfounded. The impact of service on working practice should be evaluated across all stakeholders - specifically re-distribution of work to 'unburden' the GP and the critical role of administration staff.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Morley & Ker (2019)[142]	Patient satisfaction and outcomes of MSK pain patients accessing advanced physiotherapist practitioner in primary care	General practice	Phys	C	Service evaluation (retrospective, descriptive)	Patient survey	NR	Patient opinions about the service, accessibility, timing of appointments and satisfaction	Patients were positive about the service, specifically about the speed and access to appointments. The most common outcome for APP appointment was self-management, advice and exercise prescription, reducing onward referrals to secondary care or back to GP.
Mullen, Merriman, Morecroft et al. (2018)[143]	To explore the experiences of pharmacists in their new role & gain an understanding of the GPs' perspectives	General practice	Pharm	C	Qualitative (exploratory multiple case study)	Semi-structured interviews with clinical pharmacists & GPs	4 GPs & 8 Pharmacists	Pharmacists' experiences of their new role & GPs' perspectives about the role: role integration, training & support	Mismatched expectations of the pharmacists' responsibilities and some lack of integration were identified.
Nabhani-Gebara, Fletcher, Shamim et al. (2019)[144]	To explore changes in the dynamics amongst professionals in general practice	General practice	Pharm	C	Mixed methods (qualitative & survey)	Semi-structured interviews with practice nurses, pharmacists & GPs & patient survey	10 practice nurses, 10 pharmacists, 10 GPs & 38 patients	Role introduction, role uncertainty, Interprofessional tensions, intra-professional tensions, patients' perspectives of role	Evolving role of pharmacists in primary care well received by patients & colleagues & is perceived to have positive long-term effects. However, lack of role clarity led to complexity, fragility and professional tensions due to overlap in responsibilities. Pharmacists need protected education time for professional development & further training to develop their role. Need to strengthen patient awareness of the enhanced role.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Neilson, Bruhn, Bond et al. (2015)[145]	To explore differences in mean costs and effects of pharmacist-led management of chronic pain in primary care evaluated	General practice	Pharm	C	Randomised controlled trial	3 groups: pharmacist medication review with face-to-face pharmacist prescribing; pharmacist medication review with feedback to GP; & usual GP-led care. Regression analysis of costs & effects, using intention-to-treat	125 patients	Differences in mean total costs and effects measured as quality-adjusted life years	Compared with the usual GP-led care, pharmacist-led interventions for chronic pain appear more costly & provided similar quality-adjusted life years.
Nelson, Bradley, Martindale et al. (2019)[146]	To compare how three non-medical roles were established in general practice, understand common implementation barriers, & identify measurable impacts or unintended consequences	General practice	Mixed	C, E & L	Qualitative	Semi-structured interviews & focus groups	Focus groups with 8 advanced practitioners (5 nurses, 2 paramedics, 1 physiotherapist) & 4 physician associates. Semi-structured interviews with 6 practice pharmacists, 5 GPs, 6 practice managers, 5 service leads & 4 training leads. Total number of participants = 38	Purpose & place of new roles, transition to general practice, & future roles in general practice	Introducing new roles to general practice is not a simple process. Recognition of factors affecting the assimilation of roles may help to better align with the goals of general practice and harness the commitment of individual practices to enable role sustainability.
Neylon (2015)[147]	To evaluate an ANP-led clinic in two residential care homes that provide annual reviews for chronic disease management	Care homes	Nurs	C	Service evaluation (retrospective descriptive & survey)	Review of patient records & patient satisfaction questionnaires	16 residents & 1 ANP	Number of patients who have received chronic disease management review & GP visits & hospital admission a year before & after the ACP service. Patient satisfaction with the service	The number of patients receiving chronic disease management reviews in the care homes increased as a result of the ACP service. Patients were satisfied and were willing to engage with the service. The service highlights the ANP's effectiveness in managing care home patients with chronic disease and improving their access to healthcare services

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Oliver (2017)[148]	Benefits, potential challenges, patient satisfaction with the role of an advanced nurse practitioner in a primary care and the cultural changes necessary to make the system work	General practice	Nurs	C	Survey	Questionnaire	1 ANP and 40 patients	Benefits, potential challenges, change within the practice, referrals and supervision, patient satisfaction	There is value in the roles of individual NPs, value in the domain of role, practice, patient and team. Uncovering generic value of advanced level practice is difficult but there is value in the multi-layering of advanced roles. Whilst credentialing will distinguish nurses working at higher level, it will offer nothing for nurses providing much needed services but who don't have the qualifications or training to be recognised as ANPs. Credentialing will not resolve the confusion of role tiles. As there is no political willpower for regulation and nursing does not have the political strength to make it happen, nurses in general practice will continue to use whichever title they prefer - specialist practitioner, NP or ANP. Maximising the effectiveness of the voluntary credentialing process that is currently being developed by the RCN offers the greatest potential for progressing and legitimising advanced practice.
Pallan, Linnane & Ramaiah (2005)[149]	To assess the benefits and disadvantages of a radiographer-delivered, primary care-based mobile diagnostic ultrasound service by comparing it to an NHS Trust diagnostic ultrasound service	Radiographer-led Community Diagnostic Ultrasound Service	Radiog	C	Audit (retrospective comparative study)	Ultrasound images and corresponding reports from the 2 services assessed by a consultant radiologist for quality and accuracy. Review waiting time & cost for ultrasound appointments for both services. Patients & GPs satisfaction rates with both services.	393 adult patients (200 underwent diagnostic ultrasound with the community service & 193 underwent diagnostic ultrasound with NHS services) & 36 GPs	Quality of images & accuracy of corresponding reports, waiting time, cost-effectiveness, & patients & GPs' satisfaction	The community diagnostic ultrasound service offers reduced waiting time compared to the NHS service, and is of comparable quality. This benefit, together with high patient and GP satisfaction levels, may justify the possible reduced cost-effectiveness of the service compared to the NHS service.

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Paniagua (2011)[150]	Define the distinctiveness of the Advanced Nurse Practitioner and GP roles	General practice	Nurs	C	Qualitative (discourse analysis)	Recording consultations	2 ANPs and 2 GPs	Practitioner-patient interactions and behaviours	GPs work in a different style to that of nurses. ANPs implement their nursing skills simultaneously into the medical framework, interaction and activities of primary care consultation,; and work to diminish social distance from patients which put them more in line with nursing than with medicine. Patients interact more with nurses than they do with GPs at all stages of the consultation.
Parfitt, Smeatham, Timperley et al. (2012)[151]	Demonstrate the results from a pioneering primary care-based extended scope physiotherapist led service, which placed patients directly onto the surgical waiting list of secondary care orthopaedic consultant over a 2-year period	Primary care Trust	Phys	C	Service evaluation (retrospective, analytical)	Review of referral cases for total hip replacement	Intervention group (assessed & referred by ESP) = 130 patients; Control group (referrals that bypassed the ESP team) = 40	Impact on waiting time to surgery, patient safety, appropriateness of referrals	A primary care-based ESP team can safely and effectively directly list for total hip replacement. There was overall agreement between surgeons and ESPs in all cases on the need for surgery, even though not all patients were directly listed.
Perry (2005)[152]	Explore whether the provision of a nurse practitioner facilitated access to care that met the needs of patients	Personal Medical Service site	Nurs	C	Qualitative	Semi-structured interviews	14 patients (4 males and 10 females), 4 nursing staff, 3 GPs, practice manager, and 2 reception staff	Obtaining an appointment; convenience of a female clinician; meeting the needs of patients, area of restricted access	The NP role has much to offer in terms of addressing problems around recruitment and retention of GPs and the ensuing access problems in primary care for some patients. However, thoughts need to be given to ways in which NPs can be supported in the role within an individual practice. Attention need to be paid to the traditional hierarchical structure of the primary care and ways of managing the interface and transition of nursing and medical roles. Until the highlighted legislative, bureaucratic and professional issues are addressed at the national level there will be limits to the extent to which NP role can temper problems of access in primary care.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Quicke, Cottrell, Duffy et al. (2019)[153]	To implement and evaluate a pilot physiotherapist-led osteoarthritis clinic in general practice	General practice	Phys	C	Service evaluation (retrospective, descriptive)	Patient service discharge questionnaires, medical records, patient & staff feedback regarding service acceptability	37 patients	Service discharge information, referral rates, patient & staff satisfaction levels,	Patients valued the new service (quality of support, ease of access, time & quality written information). GP partners gave positive service feedback. Embedding a clinical academic physiotherapy osteoarthritis service into general practice was feasible & acceptable & was effective in improving recorded quality of osteoarthritis care. Comprehensive multidisciplinary team support & public engagement was key in successfully setting up the service
Raleigh & Allan (2017)[154]	To explore multiple perspectives on the use of physical assessment skills by ANPs in the UK	U (community services)	Nurs	C, E	Qualitative (interpretive constructivist approach - case study)	Focus groups & semi-structured interviews	22 participants, comprising of specialist ANP (n=5) & generalist ANPs (n=7), nurse managers (n=3), nurse educators (n=4) & GPs (n=3)	Policy perspectives (benefits of physical assessment skills for ANPs in community), practice context (negotiating boundaries & time constraints) & education (barriers to physical assessment skills use in practice)	Stakeholders reported that ANPs' use of physical assessment skills in the community benefitted patients & services. ANPs use the skills to work flexibly across professional boundaries in the community, to meet patients & service needs that were unmet by GPs.
Redsell, Jackson, Stokes et al. (2007)[155]	To explore patient expectations of their consultations with nurses or GPs, whether or not they are met, and their overall satisfaction	General practice	Nurs	C	Qualitative	Semi-structured interviews	28 patients prior to consultation & 19 post consultation	Patients expectations of first-contact care consultations & satisfaction levels	The skills, knowledge and authority of nurses undertaking first-contact care were not fully understood by participants, and they may adjust their expectations to take account of this. Patients consulting with nurses may report higher satisfaction rates with nurses because they were fewer expectations beforehand, and if these were exceeded in the resulting consultation, their datisfaction were accordingly, greater.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Redsell, Stokes, Jackson et al. (2007)[156]	To explore patients' accounts of the differences in nurses' and GP roles	General practice	Nurs	C	Qualitative	Semi-structured interviews	28 patients prior to consultation & 19 post consultation	Patients' perspectives of the differences in nurses' & GP practitioners' role in primary care	Patients perceived GP as having greater skills, knowledge and authority and were the preferred practitioner for advise about potentially serious illnesses. They preferred to discuss continuity of care with GPs than nurses. Nurses' roles were mainly perceived as carrying out delegated tasks and nurses were seen as having more time for patients and as more compassionate. Patients felt that nurses were forging a new identity and this left them feeling uncertain about their competence and authority and some were frustrated about nurses' prescribing. Therefore, nurses working in advanced roles need to be more credible to patients.
Ross, McGowan & Wightman (2019)[157]	Evaluate the impact of an advanced practitioner physiotherapist as first point of contact in a GP cluster	General practice	Phys	C	Service evaluation (retrospective, descriptive & survey)	Review of cases seen by APP & patient survey	NR	Referral rates, patient satisfaction	Majority of GPs MSK caseload can be seen safely and effectively by a physiotherapist.
Ryan, Dawes, Packham et al. (2008)[158]	To identify whether the number of GP appointments for symptoms relating to fibromyalgia has changed in 12 month period before & after attendance at the nurse consultant-led pain clinic	Nurse-led Community Pain Clinic	Nurs	C	Service evaluation (retrospective audit)	Review of patient records	Medical records of 60 patients	Number of GP visits for fibromyalgia-related symptoms, & reasons for GP visits (MSK pain, mood & chest pain) 12 months before & after the ACP service	A designated community based service for patients with fibromyalgia can reduce the utilisation of both primary care services
Salmon, Humphreys, Price et al. (2017)[159]	Can physiotherapist first contact reduce the burden on GP and improve management of musculoskeletal conditions?	General practice	Phys	C	Service evaluation (prospective, descriptive & patient survey)	Review of cases seen by FCP & patient questionnaires	428 patient records & 229 patient questionnaires	Impact on GP-led orthopaedic referrals; FCP referral rates; patient satisfaction	Physiotherapists as FCP can assess and treat MSK patients at a lower cost and deliver a high level of patient satisfaction. A 40% reduction in secondary care referrals strongly support the case for a redirection of funding to support this approach to primary care redesign.

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Scottish School of Primary Care (2018)[160]	To assess the impact of service on GP capacity to concentrate on non MSK-related activities, Mainstream MSK physiotherapy utilisation, and patient access to appropriate services.	General practice	Phys	C	Service evaluation (retrospective, survey & qualitative)	Review of cases seen by APP, survey questionnaires & semi-structured interviews	Patients, GPs, practice staff and APP. Number of participants not reported	APP consultations, referral rates, patients' & staff perception and experience, healthcare utilisation.	Fewer patients referred to orthopaedic and imaging secondary care services, service provided early access to expert reassurance and advice on self-management measures, APP service scored higher on a patient satisfaction scale, 3/4 of patients seen by APP did not seek subsequent GP appointment for the same problem, and service impacted positively on GP workload.
Seale, Anderson & Kinnersley (2005)[161]	Discover what nurses do with the extra consultation time, and how their consultations differ from those of GPs	General practice	Nurs	C	Qualitative	Recording consultations	36 matched pairs of recorded consultations by a GP and NP	Length of consultation; focus of interactions (information gathering, physical examination, naming/explaining condition, treatment, social/emotional/patient-centred elements)	In nurse consultations, the patient talked more, nurse talked significantly about treatment, and discussed social and emotional aspects of patients' lives compared to GP consultations. NP needed to get prescription signed by GPs which made the consultation lengthier.
Seale, Anderson & Kinnersley (2006)[162]	Describe the differences in the behaviours of nurse practitioners and GPs, and identify behaviours that may relate to patient satisfaction	General practice	Nurs	C	Qualitative	Recording consultations	55 recorded consultations (22 GPs and 33 NPs)	Types of talk about treatments and practitioner behaviours	NP consultation lasts longer compared to that of GPs and the use of treatment and concerns about their potential side effects disproportionately dominated NP consultations. This may lead to the greater level of adherence for treatment recommended by NP. Therefore, recommending that NPs adopt the more concise GP style may save costs, but may have untoward effects on health outcomes. On the other hand, recommending that GPs adopt the NP style may raise patient satisfaction but negatively affect the cost. In order to concurrently reduce cost and raise patient satisfaction

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									with both NP and GP consultations, practitioners need to consider how much information is appropriate to provide to particular patients.
Sephton, Hough, Roberts et al. (2010)[163]	Evaluate the clinical effectiveness of the primary care musculoskeletal clinical assessment service	Musculoskeletal Clinical Assessment Service (MCAS) in a Primary Care Trust	Phys	C	Service evaluation (survey)	Questionnaire	217 patients referred by GP	Health status - pain; QOL and satisfaction with service	Patients managed by the MCAS showed modest but statistically significant improvement in both pain scores and health status that were maintained at 12-month follow-up. They reported sizeable and significant levels of perceived improvement and high levels of satisfaction.
Snell, Langram & Donyai (2017)[164]	Investigate patient views about patient-centred clinical pharmacist-led polypharmacy medication review	General practice	Pharm	C	Service evaluation (Survey)	Questionnaires	166 patients	Patient satisfaction with service	Patients expressed broadly positive views about polypharmacy reviews by clinical pharmacists within GP practices
Thompson, McNall, Tiplady et al. (2019)[165]	Ascertain primary care advanced clinical practitioners perceptions and experiences of what factors influence the development and identity of ACP roles, and how development of ACPs roles that align with HEE capability framework for advanced clinical practice can be facilitated in primary care	NR	Mixed	NA	Mixed-method (survey & qualitative)	Questionnaires & semi-structured interviews	22 individual interviews with ACPs (16 nurses, 2 OT, 1 dietician, 1 physiotherapist, 3 unspecified AHP)	Role definition, education and development provision, support and supervision, career pathway	Need for standardisation and consistency in the ACP role definition; and quality accredited educational and professional development opportunities at appropriate levels. There need to be support and supervision in practice, support should not be limited to clinical development, but include support regarding the change in role and uncertainty about professional identity that may accompany it. Recruitment of ACPs to fill GP gaps can restrict ACPs scope of practice to clinical activities, and lead to GPs reluctance to allow ACPs to work to their full potential. To address these, there's the need for an organisational/cultural change in how

Author & Year	Focus & Aims NR=not reported	Setting	Prof Group	Pillar	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
									primary care is organised and delivered. Need for a nationally recognised career pathway to provide sustainable professional development flow.
Williams & Jones (2006)[166]	Explore patients' views about consulting with a primary care nurse practitioner	General practice	Nurs	C	Qualitative	Semi-structured interviews	10 patients	Perception of time spent with NPs in consultation, time as a commodity in patients' lives, and patient preferences and concerns about the delivery of primary care	Time matters to patients, whether it is time to discuss problems fully or time saved as a result of having issues resolved so that further visits are minimised. Patients were satisfied with their consultations with NPs in both aspects. Time was associated with the NPs style of consultation, questioning skills and recourse to strategies beside prescribing.
Williams, Smith, Chapman et al. (2011)[167]	To explore patients' views & experiences of the community matron role in one primary care provider organisation	Primary care Trust	Nurs	C	Qualitative	Semi-structured interviews	14 patients	Access to care, psychosocial support, patient advocacy & differences to care received from other primary healthcare staff	There is evidence that community matrons may have a beneficial effects on patients' perceptions of their care, psychosocial support, access to services & advocacy.

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Yuill (2018)[168]	Evaluate the role and experiences of advanced nurse practitioners working in an out-of-hours urgent primary care service and identify important factors that affect their roles	Out-of-hours	Nurs	C	Service evaluation (survey & qualitative)	online questionnaire & semi-structured interviews	Online questionnaire: 25 ANPs. Interviews: 5 ANPs	Career progression and autonomy, variety and challenge, quality care and peer support, knowledge base, role definition and perceptions, teamwork, isolation, stress and workload, clinical supervision, education and development, mentor/buddy	ANPs have a strong dedication and commitment to their work and enjoy its positive aspects, including career progression and autonomy, the variety and challenge inherent in the role, the quality of care they provide, and the peer support they receive from clinical colleagues. However, there are negative forces such as limited knowledge base, lack of role definition and understanding, isolation, stress and increased workload. Change will come through effective communication, multi-professional working and empowering nurses to take part in mentorship, supervision and ongoing development through network forums.

Emergency and Pre-Hospital Care

Author & Year	Focus/Aims	Prof Gp	Pillars	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall conclusions
Aiello, Terry, Selopal et al. (2017)[169]	To investigate whether pharmacist prescribers trained through an advanced clinical programme in clinical diagnostic & examination could positively impact on delivery of patient care in the ED	Pharm	C, E	Retrospective observational study	Review of 18613 sets patient data by pharmacists	18, 613 ED cases	Percentage of cases that have potential for clinical management by a pharmacist	Pharmacists have the potential to clinically manage up to 36% of study patients: faster, safer discharge of patients, improved access to & quality of medicine optimisation in ED, enhanced ability to contribute to seven-day working models, & significant contribution to enhancing general practice & community service. Pharmacist who follow a clinically enhanced training pathway could competently conduct advanced clinical practice as a specialty generalist clinician in urgent, acute & ED care, working as part of the multi-professional and multi-skilled team.
Blakeley, Hogg & Heywood (2008)[170]	To evaluate the impact of a radiographer image-reading service supporting a minor injuries unit in a UK emergency department	Radio	C	Service evaluation (audit, observational, qualitative)	A review of key performance indicators before & after implementation of the service, audit of the radiographers' sensitivity, specificity & diagnostic accuracy, & semi-structured interviews with ED staff	3778 images	Key performance indicators before & after ACP service, accuracy of radiographer image-reading in comparison to a consultant radiologist & ED staff perceptions & experiences of ACP service	The image-reading radiographer service has increased the number of radiographic images read, improved turnaround times & had positive effects on both patient management & the multidisciplinary healthcare team.

Author & Year	Focus/Aims	Prof Gp	Pillars	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall conclusions
Charters, Knight, Currie et al. (2005)[171]	To elicit information regarding level of preparation for the consultant nurse role, the use of formal competency frameworks, current clinical scope of practice & perspectives on future preparation for the role	Nurs	C, E, L & R	Survey	Questionnaires	25 consultant nurses	Role within the Trust: advanced clinical skills, strategic role & consultancy, research & publication, competency frameworks, ways of working, professional support, satisfaction with role, & major achievements	Majority of the respondents felt under prepared for one or more elements of the consultant nurse role. Clinically, the scope of practice ranged from the management of patients with minor illness or injury to leading resuscitation teams. There is great inequity of levels of preparation for the role, greatest in the transformational leadership, education & training, & practice & service development domains. Strategies for addressing challenges include introduction of a nationally standardised trainee emergency consultant nurse programme, creation of a recognised consultant nurse development framework & pathway, & development of a nationally agreed emergency nurse competency framework.
Feetham, Christian, Benger et al. (2015)[172]	To establish the unplanned reattendance rate for paediatric emergency nurse practitioners (PENP) working in a designated paediatric emergency department while identifying the case mix of patients seen by PENPs compared with their medical counterparts	Nurs	C	Retrospective observational study	Retrospective review of case notes	1150 case notes of patients making initial attendances	Reattendance rates, patient characteristics, triage scores, presenting complaints & number of patients discussed with a paediatric emergency medicine consultant	PENPs worked autonomously when seeing children presenting with minor trauma & make a positive contribution in achieving the reattendance clinical quality indicator.
Greenwood, Tully, Martin et al. (2019)[173]	To describe, compare & define emergency department pharmacist practitioner role	Pharm	C	Survey	Questionnaires	20 pharmacists	Direct patient care, clinical examinations, tests & procedures requested, treatments provided (medicines & procedures), discharge, contribution to the wider ED, & typology of activities performed.	Pharmacists with additional clinical skills can act as designated care provider with overall responsibility for ED patients. They can fill gaps in doctors & nurse practitioner rotas & provide pharmaceutical care lacking in ED. They are versatile solution to both staff shortage & a lack of pharmacy input.

Author & Year	Focus/Aims	Prof Gp	Pillars	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall conclusions
Hayward (2019)[174]	To assess the management of suspected scaphoid fractures in a new physiotherapy-led Scaphoid clinic & to compare the standard of care for suspected scaphoid fractures for patients who were previously being managed by the ED doctors in an ED consultant clinic	Phys	C	Service evaluation (audit)	Compare data collected prospectively from patients managed the physiotherapist-led clinic to that collected retrospectively for patients managed in the ED consultant clinic	132 patients: 66 seen by physiotherapist & 66 seen by ED consultant	Follow-ups, non-attendance for requested imaging, referral rates, imaging requests	The new physiotherapist-led scaphoid clinic demonstrated that the standard of care & referral for secondary imaging for suspected scaphoid fractures is the same to that of patients being managed by an ED consultant.
McClellan, Cramp, Powell et al. (2012)[175]	To evaluate the clinical effectiveness of soft tissue management by emergency nurse practitioners (ENPs) & extended scope physiotherapists (ESPs) compared to the routine care provided by doctors in a UK emergency department	Phys	C	Randomised controlled trial	Treatment groups (ESP or ENP) and control group (routine care by ED doctor)	249 to the treatment groups (i.e. 126 ESP group & 123 to ENP group) & 123 to the routine care group (i.e. doctors of all grades)	Upper -limb & lower-limb functional scores, quality of life, physical well-being, preference-based health measures & the number of days off work	The clinical outcomes of soft tissue injury treated by ESPs and ENPs in the ED were equivalent to routine care provided by doctors. ESP should be considered as part of the clinical skill mix without detriment to outcomes.
McClellan, Greenwood & Benger (2006)[176]	To evaluate the effect of introducing an extended scope physiotherapist (ESP) service on patient satisfaction & to measure the functional outcomes with soft tissue injuries attending an adult emergency department, comparing management by ESP, emergency nurse practitioners and all grades of ED doctor	Phys	C	Service evaluation (Survey & retrospective observational)	Satisfaction survey, functional outcome questionnaire & review of case notes	780 patients for satisfaction (response rate = 45%), 489 patients for functional outcomes (response rate = 22%) & 11771 minor injury attendance	Patient satisfaction, functional outcomes of patients, waiting time & time patient spent with practitioner	Adding an ESP service to the interdisciplinary team achieves higher levels of patient satisfaction than for either doctors or emergency nurse practitioners.
Rouse, George & Rutherford (2018)[177]	To describe the endotracheal intubation data set by advanced paramedic practitioners in critical care when intubating patients in cardiac arrest	Paramed	C	Service evaluation (retrospective, descriptive)	Review of dataset	805 patient data	Endotracheal intubation success rate compared to that of physician and non-physician-reported data	An endotracheal intubation success rate and first-pass success rate are comparable with physician and non-physician-reported data. However, improved Cormack & Lehane scores has been reported compared with this study.

Miscellaneous/Mixed Papers

Author & Year	Focus/Aims	Prof Gp	Pillars	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Anderson (2017)[178]	To capture the expressed views of qualified advanced nurse practitioners on their leadership experiences	Nur	C, L	Qualitative (case study)	Semi-structured interviews	8 ANPs	Placement on the leadership pyramid, motivating the team, retreating to the safety of the nursing profession, assumed & accepted medical hierarchy, & ANPs impact on patient outcomes	ANPs have a pivotal leadership role in current healthcare provision. The participant ANPs demonstrable leadership, enables nursing & the multi-professional team, in meeting the increasingly complex needs & expectations of patients.
Booth, Henwood & Miller (2016)[179]	To explore the role of consultant radiographers in the UK	Radiog	C, E, L & R	Qualitative	Semi-structured interviews	8 Consultant radiographers	Role scope and developments, evolution of the role, the domains of practice & frustrations & inequalities	The range & scope of consultants' practice is extensive & highly variable. There is clear role autonomy, which is distinct from advanced practitioners' status, whereas there was a difference of opinion (predominantly by speciality) as to whether or not there was similarity with a doctor's role. The individual nature of the role in relation to local need is evident. Problem solving & advisory role were commonly reported & there was a prevalent view that the role has positively impacted on patient care.
Booth, Hutchison, Beech et al. (2006)[180]	To describe career pathways of consultant nurse/midwives & identify post holders views on key factors in role initiation, development & progression to inform future development	Nurs, Mid	C, E, L & R	Survey	Questionnaires	18 nurse & midwifery consultants	Mentorship, autonomy, clinical credibility & barriers to role delivery	Consultant nurse & midwife posts are important for the profession & provide individuals with many opportunities & challenges to develop both professionally & personally. Therefore, they should be further developed & enabled to flourish.

Author & Year	Focus/Aims	Prof Gp	Pillars	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Brimblecombe, Nolan, Khoo et al. (2019)[181]	To identify changes in nurse consultant numbers in mental health services, identify post holder characteristics & factors influencing number of posts	Nurs	NA	Mixed methods (survey & qualitative)	Telephone interviews, document analysis & survey questionnaires	Survey - 58 Mental Health Trusts (response rate=87.9%). Questionnaires sent to directors of nursing in the trusts. Interviews: Director of nursing from 12 Trusts	Numbers of nurse consultants, characteristics of nurse consultants, factors affecting consultant numbers, impact of nurse leaders on role, policy impact, & role clarity & title	Nurse consultants are represented to a greater in the mental health service workforce that in nursing generally, but their roles often lack clarity. Attitudes of local professional leaders & national policies are likely to affect post numbers. Developing & sustaining nurse consultant roles requires role clarity & active support nurse leaders. Role need to demonstrate their value to the clinical systems in which they work.
Coster, Redfern, Wilson-Barnett et al. (2006)[182]	To evaluate the role of the nurse, midwife & health visitor consultant & the consultants' perceived impact of their role on services & patient care	Nurs, Mid, HV	C, E, L & R	Mixed methods (survey & qualitative)	Survey questionnaires, focus groups & semi-structured interviews	419 survey respondents; 22 participants in 4 focus groups & 32 for semi-structured interviews	Impact on patient care, impact on service provision, perceived areas of least impact & predictors of perceived impact	Most consultants reported a positive impact on service improvements & patient care, & with increasing time in the role, they become more confident in their ability to increase impact on practice.
Gerrard (2018)[183]	To embed the role of a pharmacist independent prescriber within a community learning disability team, release psychiatry time	Pharm	C	Service evaluation (prospective observational)	Prospective evaluation of caseload	62 caseloads	Number of caseloads, medications initiated, dose alterations, medications stopped, reviews, & psychiatry time released	The role has been successful in releasing significant psychiatry time, demonstrated that an ACP can manage caseload safely & effectively, increasing the focus on physical health & well-being; raised the awareness of the role of positive behavioural support; & brought additional role awareness & training opportunities for the team, allowing better medication awareness & data capture to the clinical recording system.

Author & Year	Focus/Aims	Prof Gp	Pillars	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Hill, Conroy, Brown et al. (2014)[184]	To establish opinions of independent pharmacist prescribers & stakeholders with the service	Pharm	C	Mixed methods (survey & qualitative)	Patient questionnaires, semis-structured interviews with ACPs & general practitioner questionnaires	86 patients, 5 pharmacists & 6 GPs	Perceptions of ACP, opinion of service, ACP confidence & support in role, &impact of ACP on GP service,	ACPs are viewed as an integral part of the addiction services. Role is seen as effective, & the preferred option for many service users. ACPs see their value to the service & the patient, although GPs have more reservations & none are convinced about the benefits of the pharmacist-led clinics to patients.
Jones, Powell, Watkins et al. (2015)[185]	To explore perceptions of the current practice & future potential of advanced practitioners from the perspectives of different professional groups in Wales UK	Mixed	NA	Qualitative	Focus groups	9 focus groups with 67 stakeholders: advanced practitioners (speech & language therapists, nurses, paramedics & physiotherapists), medical practitioners, workforce developers, educators & managers	Demand, policy context & future priorities; role clarification & standardisation; agreement & understanding of the role; & interprofessional working	The context within which current & future AP roles were considered was influenced by inevitable demands for healthcare & the requirements to meet health policy priorities. Developing AP roles were hampered currently by a lack of shared understanding and 'joined-up' working between medical practitioners, managers, commissioners & educators. For AP roles to flourish, more 'joined-up' thinking, support & development opportunities are required between APs, managers, senior clinicians, commissioners & educators.
Mullen, Gavin-Daley, Kilgannon et al. (2011)[186]	To evaluate the non-medical consultant role in the North West England: current numbers, what they do & the impact of the role in practice	Nurs, Mid, HV	C, L	Mixed methods (survey & qualitative)	Survey questionnaires & focus groups	95 survey respondents (nurse, midwifery & health visiting consultants) & 3 focus groups with 16 consultants	Number of nurse consultants, what they do & the impact of the role in practice	The role is effective, flexible, response & forward facing both internally & externally. Consultants lead, drive & support quality improvement, increased productivity & service effectiveness. Other impacts include sharing & promoting best practice with colleagues, income generation & financial savings through service redesign & staff skill mix changes. A key challenge for the consultants was organisational understanding of the role. the small size of consultant workforce can limit individual organisations experience of establishing & supporting the role.

Author & Year	Focus/Aims	Prof Gp	Pillars	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
O'Brien (2019)[187]	To evaluate impact of pharmacist independent prescriber on waiting times at attention deficit hyperactivity disorder (ADHD) titration clinic	Pharm	C	Service evaluation (prospective observational)	Review & update of ADHD titration waiting list	Review 78 cases requiring ADHD medication initiation	Waiting time for medication initiation	The ACP played a significant role in the reduction of the waiting list for initiation of medication to treat ADHD.
Stevenson, Ryan & Masterson (2011)[188]	To explore the perceptions & experiences of nurse & allied health professional consultants & key stakeholders	Mixed	C, L	Qualitative	Focus groups	1 Focus groups with 7 non-medical consultants (5 nurses, 1 physiotherapist & 1 pharmacist) & 1 with 8 stakeholders (AHP lead, advanced practitioner, manager, chief nurse, professor head of school, lecturer, clinical specialist OT & deputy director of strategic planning)	Role interpretation, role implementation, role impact & challenges	Participants were able to identify the clinical impact of the role, in terms of helping patients to manage chronic pain, reducing follow-up appointments & managing emergency admissions. Challenges confronting role included lack of preparation, organisational support, professional isolation & lack of acceptance & role overload.

Author & Year	Focus/Aims	Prof Gp	Pillars	Study Design/ Methodology	Methods	Participants	Outcome Measures	Overall Conclusions
Walsgrove (2019)[189]	To explore the life world experiences of being an advanced nurse, & to understand what their perceptions are of the contribution & added value they bring to patient care & service delivery	Nurs	C, E, L & R	Qualitative (Phenomenology)	Semi-structured interviews	6 ANPs & 1 Nurse Consultant	Becoming an advanced nurse, being an advanced nurse, & contributing to patient care & service delivery	For ANPs, the clinical pillar represented approximately 70% of their practice, blending expert nursing practice with skills more usually considered the remit of medical practice, which required professional responsibility & accountability & higher levels of autonomy & independent practice. The education pillar included supporting staff, including doctors & nurses & trainee ACPs to meet individual needs & organisational requirements in order to facilitate quality patient care. The leadership & research pillar were less significant for ACPs, amounting less than 10% each.
Woodward, Webb & Prowse (2005)[190]	To evaluate nurse consultants' characteristics & achievements in the role	Nurs	C, E, L & R	Qualitative (case study)	In-depth unstructured individual interviews	10 Nurse Consultants	Characteristics of nurse consultants, role achievement, support systems & NHS influences	The nurse consultants who were able to carry out their roles successfully were the most experienced practitioners who had prior knowledge & experience of all four domains before coming into post. Those who were unable to fulfil all aspects of the role were more likely to be achieving only the basic elements, usually clinical commitments.
Woodward, Webb & Prowse (2006)[191]	To explore the organisational influences on nurse consultant post holders	Nurs	C, E, L & R	Qualitative (case study)	In-depth unstructured individual interviews	10 Nurse Consultants	Support systems (networks, support, relationships) & HNS influences (policy, NHS power-base, research)	Nurse consultant role is a complex, demanding & evolving one. Achievement of the role is highly affected by a variety of influences, many of which are outside the control of the individual. This is especially so with support systems & NHS influences which can be to be highly influence on role achievement. Nurse consultants considered that managers & colleagues often saw the non-clinical domains of the role as secondary, & some did not understand the nature of the nurse consultant role. It appears that trusts & individual have yet to strike the right balance when prioritising what nurse consultants do.

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Supplementary File 8: Overview of Study Designs, Approaches and Methodologies

Study Design/Paradigm

Design	No. of Papers	References
Quantitative	N=112	1-111
Qualitative	N=52	35, 112-162
Mixed Method	N=27	163-189

Service Evaluations and Audits

Study Type	No. of Papers	References
Service evaluation	N=87	4, 5, 8, 14-16, 22-24, 26-28, 30, 31, 38, 39, 42-44, 46, 48, 49, 53-58, 61, 62, 64, 66, 67, 71-93, 96-98, 101, 102, 104-111, 132, 164-166, 168-170, 172-175, 178, 183, 185 186-189
Audit (retrospective or prospective)	N=29	2, 3, 6, 7, 9, 11-13, 17-21, 25, 29, 32-34, 36, 40, 41, 45, 47, 50-52, 68, 70, 99

Research Sites

Research Sites	No. of Papers	References
Single centre	N=122	1-3, 5-36, 38-41, 43-73, 77, 78, 82, 84, 87, 89-92, 99, 102-104, 106, 108, 110-117, 119-121, 123, 125, 126, 128, 130-133, 137, 143, 144, 146, 148, 151, 163-169, 171, 174, 175, 185, 190
Multiple centres (including surveys)	N=63	4, 37, 42, 74-76, 80, 81, 83, 85, 86, 88, 93-98, 100, 101, 105, 107, 109, 118, 122, 124, 127, 129, 134-136, 139-141, 145, 147, 149, 150, 152, 155-162, 170, 172, 173, 176-183, 186-189, 191
Unreported	N=6	79, 138, 142, 153, 154, 184

Type of Publication

Publication Type	No. of Papers	References
Journal articles	N=120	4, 6-10, 13-17, 24, 25, 27, 28, 30-32, 34, 37, 39, 46-48, 51, 52, 54, 56, 58-60, 65, 68-71, 78-81, 85, 88, 90-93, 95-99, 101, 103-107, 109, 112-115, 117-126, 128-140, 143, 144, 146, 148-152, 155, 157, 159-163, 165, 167, 171-175, 179, 181, 182, 184-191
Published conference abstracts	N=61	1-3, 5, 11, 12, 17-19, 21-23, 26, 29, 33, 35, 36, 38, 40, 41, 43-45, 49, 50, 55, 57, 61-64, 66, 67, 72-77, 82-84, 87, 89, 94, 100, 102, 108, 110, 111, 116, 153, 154, 164, 166, 168, 169, 176-178, 180
PhD Thesis	N=6	127, 141, 142, 145, 156
Evaluation reports	N=4	42, 86, 158, 170, 183

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Supplementary File 9: Table of ACP Titles Identified in the Papers in the Review Per Profession

Profession	Title(s)	No. of Titles
Nursing	1. Advanced nurse practitioner 2. Advanced paediatric nurse practitioner 3. Paediatric emergency nurse practitioner 4. Advanced community practitioner 5. Nurse practitioner 6. First contact nurse practitioner 7. Consultant nurse 8. Retrieval nurse practitioner 9. Advanced critical care practitioner 10. Advanced neonatal care practitioner 11. Advanced nurse practitioner in critical care 12. Advanced nurse practitioner in palliative care 13. Advanced care nurse practitioner 14. Advanced clinical practitioner 15. Nurse-led	15
Pharmacy	1. Independent pharmacist prescribers 2. Independent prescribing pharmacists 3. Pharmacist independent prescriber 4. Clinical pharmacists 5. Practice-based pharmacists 6. General practice pharmacist 7. Community pharmacist independent prescribers 8. Pharmacist 9. Consultant pharmacist 10. Advanced paediatric pharmacist practitioner 11. Specialist pharmacist independent prescriber 12. Advance level critical care pharmacist 13. Emergency department pharmacist practitioner	13
Radiography	1. Independent radiographer 2. Radiographer 3. Advanced uro-radiographer 4. MRI radiographer 5. Advanced practice radiographer 6. Consultant radiographer 7. Radiographer advanced practitioner 8. Reporting radiographer 9. Specialist radiographer 10. Advanced practitioner radiographer 11. Radiographer with extended role 12. Advanced radiation therapist 13. Image reading radiographer	13
Physiotherapy	1. Advanced practitioner 2. Advanced physiotherapy practitioner 3. Advanced diagnostic and triage physiotherapist 4. Advanced physiotherapist practitioner 5. Advanced practice musculoskeletal physiotherapist practitioner	17

Profession	Title(s)	No. of Titles
	6. Advanced practitioner physiotherapist 7. Advanced practice physiotherapist 8. Clinical academic physiotherapist 9. Extended scope physiotherapist 10. Physiotherapist extended scope practitioner 11. Extended scope practitioner 12. First contact physiotherapist 13. First contact practitioner 14. Consultant physiotherapist independent prescriber 15. Consultant physiotherapist 16. Orthopaedic physiotherapy practitioners 17. Physiotherapy-led…	
Occupational Therapy	• Occupational therapy advanced practitioner • Extended scope practitioner	2
Midwifery	• Consultant midwife	1
Healthcare Scientist	• Advanced practitioner healthcare scientist	1
Paramedic	• Advanced paramedic practitioner	1
Perioperative Specialist Practitioner	• Perioperative specialist practitioner	1
Audiology	• Audiologist	1
Multi-Professional (papers including a varied mix of professions including health visiting, midwifery, nursing, physiotherapy, pharmacy, paramedics, dietician, speech & language therapy, unspecified allied health professionals)		